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# HARRIS COUNTY HOMELESSNESS MORTALITY REPORT (2022)

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# INTRODUCTION

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**In Harris County,** mortality among people experiencing homelessness has increased in recent years even as unsheltered homelessness has been reduced dramatically across the same area, urging us to understand the causes of death and identify methods to reduce mortality. Since 2018, the homeless population in the county has decreased by 27%, in spite of the rise in deaths. Using data from the Harris County Institute of Forensic Sciences (HCIFS), we have compiled this second annual report to identify the demographics and causes of death for people experiencing homelessness in Harris County. In 2022, 238 individuals experiencing homelessness died, which means that someone dies in homelessness approximately every 36 hours. Of those deaths, a shocking 42% were because of acute drug toxicity (sometimes referred to as an overdose). It's worth noting in our report, we have chosen to classify both intentional (i.e. suicides) and unintentional deaths as deaths from acute drug toxicity.

This problem is not isolated to the homelessness experience. Drug overdose has become an epidemic in the United States in the last 20 years, causing the deaths of 106,699 individuals in the U.S. in 2021 (Spencer et al., 2022). Opioids and stimulants make up a large proportion of drugs used in overdoses (Spencer et al., 2022). Our analysis of deaths of people experiencing homelessness found that opioids and stimulants also make up a large percentage of the substances used during fatal overdoses in Harris County. Both the total number of deaths among people experiencing homelessness and the proportion of deaths attributed to acute drug toxicity have increased in recent years.

Although the increase in total deaths may be attributed to improvements in recognizing individuals who were homeless at their time of death, the increasing proportion of deaths caused by acute drug toxicity shows that overdose deaths are becoming a rising problem in the county.

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## LIMITATIONS

Even in this second annual report, we need to offer some disclaimers up front. The numbers in this report are certain to reflect an undercount of the number of actual deaths occurring in homelessness in Harris County. Furthermore, our continued reliance on medical examiner data means that we are examining a subset of the total deaths in the county, though we expect that the majority of deaths occurring in homelessness are captured by the HCIFS sample.

This work relies on methods being developed in partnership with the Homeless Mortality Working Group of the National Health Care for the Homeless Council. However, it does not perfectly match or provide a comparison to other municipal communities, even if they are implementing similar strategies. There is just too much variability between municipalities.

This report is paired with a second round of recommendations, while some of the first round are still being reviewed for implementation. This includes suggestions for everything from standardization of case definitions to data harmonization. Those recommendations have and will increase the sensitivity of detection methods, complicating the longitudinal comparability of this data (i.e. comparing to past and future years).

Finally, a quick word of thanks to the HCIFS for their ongoing support of this analysis, as well as to the UH Division of Research's internal Small Grant Program and the UH HEALTH Center for Addictions Research and Cancer Prevention's Pilot Grant Program.

-Ben King, Ph.D. M.P.H. and Renae Nichols

# Homelessness in Harris County

Table 1. Demographic Data from Point-In-Time Counts for Harris County in 2022 and 2023

Race/Ethnicity	2022	2022	2023	2023
American Indian or Alaska Native	25	0.8%	30	1%
Asian	42	1%	30	1%
Black or African American	1633	52%	1644	55%
Hispanic/Latino	515	17%	448	15%
Multi-Racial	59	2%	60	2%
Native Hawaiian or Other Pacific Islander	8	0.3%	9	0.3%
White, Non-Hispanic/Latino*	842	27%	768	26%
<b>Total</b>	<b>3124</b>	<b>100%</b>	<b>2989</b>	<b>100%</b>

\*From HUD HDX; Hispanics are subtracted from white race total

In both 2022 and 2023, over half of the homeless count is made up of Black or African American individuals. This proportion is higher than across the rest of the United States. In 2022, 37% of the people experiencing homelessness (PEH) in all of the U.S. were Black (HUD, 2022-2), down from 39.4% in 2020 (HUD, 2022-1). Meanwhile, 20.6% of people living in Houston are Black, suggesting that Black individuals are dramatically overrepresented in homelessness (US Census Bureau, 2022; HUD, 2022-1 & 2). The disproportionate representation of demographic groups experiencing homelessness highlights the systemic influences that contribute to homelessness.

In 2022, an estimated 27.1% of the Harris County population was white (US Census Bureau, 2022), roughly matching representation in the homeless population at points on either side of the same year (HUD, 2022-1 & 2). This is fairly consistent with national trends.

Between 2022 and 2023, The estimated percent of Hispanic individuals decreased by 2 percentage-points and the amount of Black individuals rose by 3 percentage-points, while the estimate of white PEH remained relatively constant.



# Demographics

Figure 1. Histogram of age distribution

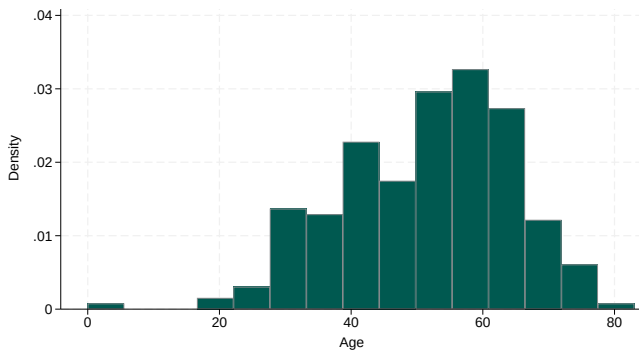
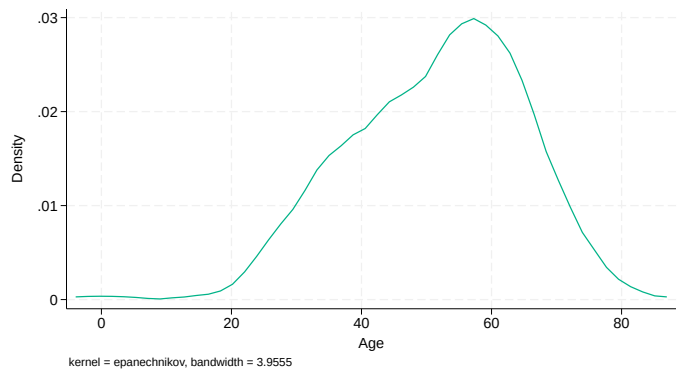


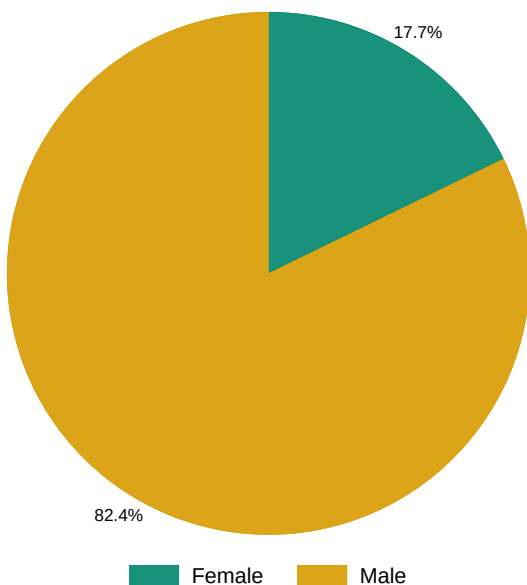
Figure 2. Kernel density plot of age distribution



## AGE

In 2022, the mean age of individuals who died while experiencing homelessness was 51. The median age of death was 53 [Interquartile Range = 41 - 61 years]. As discussed later in this report, individuals who died of accidents were more likely to die at younger ages compared to individuals who died of natural causes.

Figure 3. Distribution of sex



## SEX

The majority of people who died while experiencing homelessness were male. 82.35% of the people who died while experiencing homelessness were male, whereas 17.65% were female. With males making up 50.8% of the general population in Harris County (US Census Bureau, 2022), males are vastly overrepresented in homeless mortality counts.

Figure 4. Distribution of race and ethnicity

## RACE & ETHNICITY

Nearly half of the decedents were non-Hispanic white, followed by Black and Hispanic individuals. Compared to the demographics of the population of Harris County, Black and white individuals are overrepresented in the homeless mortality count. Hispanic individuals were underrepresented in the homeless mortality counts. This may be attributed to different reasons for becoming homeless for Hispanic and non-Hispanic white individuals.

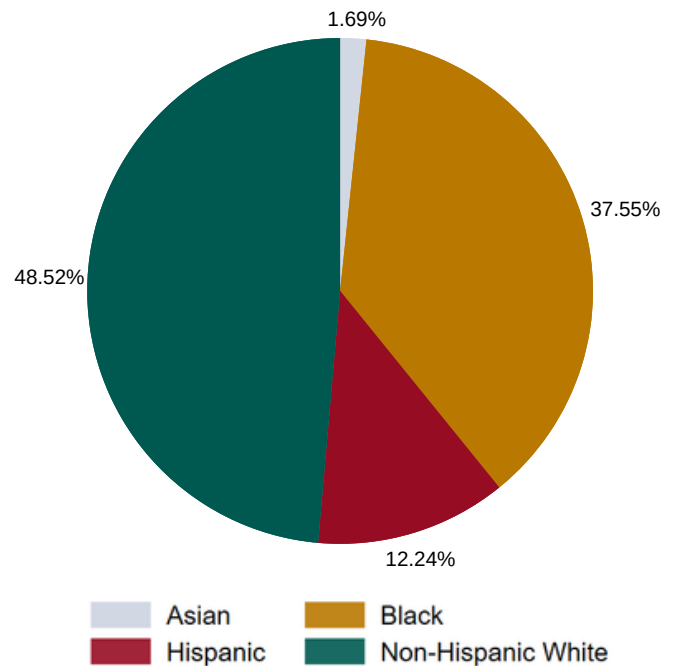
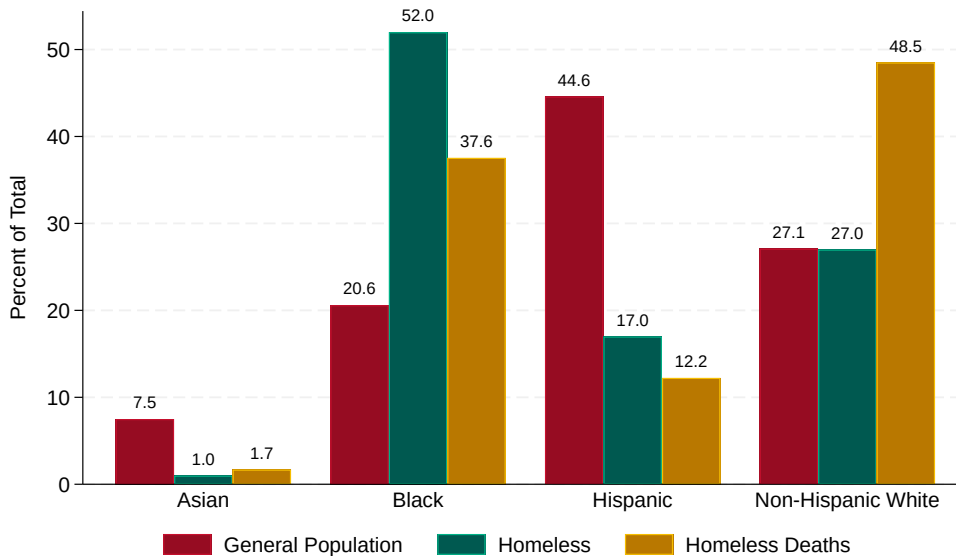
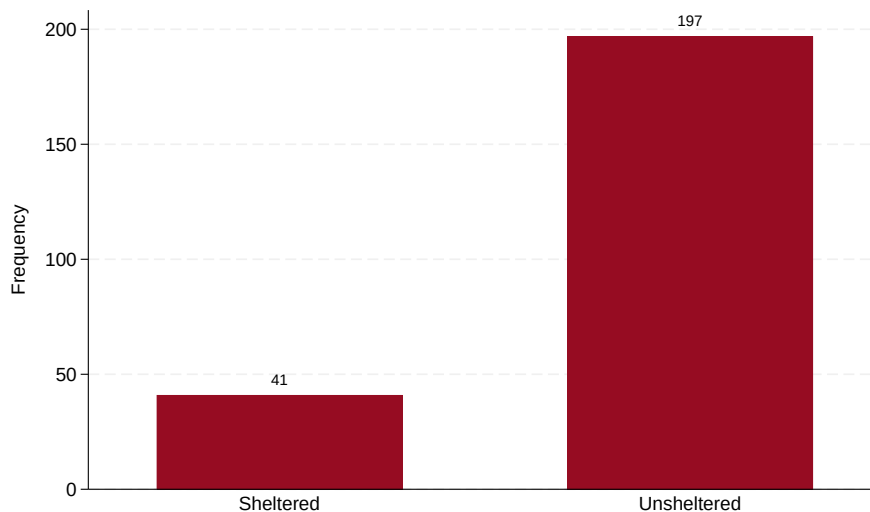


Figure 5. Racial distribution of homeless deaths compared to the homeless population and general population

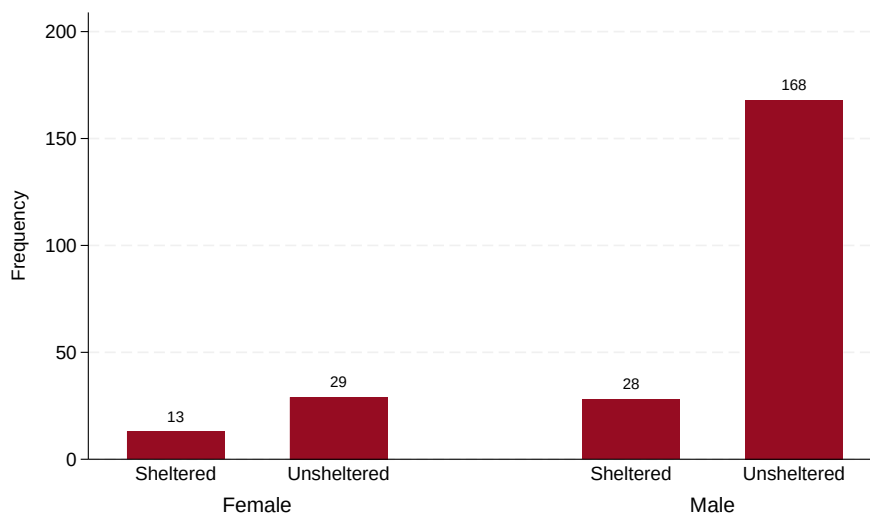


Compared to the general population in Harris County, Asian and Hispanic individuals are underrepresented in homelessness, while Black individuals are overrepresented in homelessness. This is based on the Harris County Point-In-Time counts. Compared to those living while experiencing homelessness, non-Hispanic white individuals are overrepresented in homeless mortality, while Black and Hispanic individuals are underrepresented. This suggests that non-Hispanic white individuals enter homelessness with more comorbidities that increase the chance of death.

*Figure 6. Count of homeless decedents based on their location of death*



*Figure 7. Count of location of death by sex*



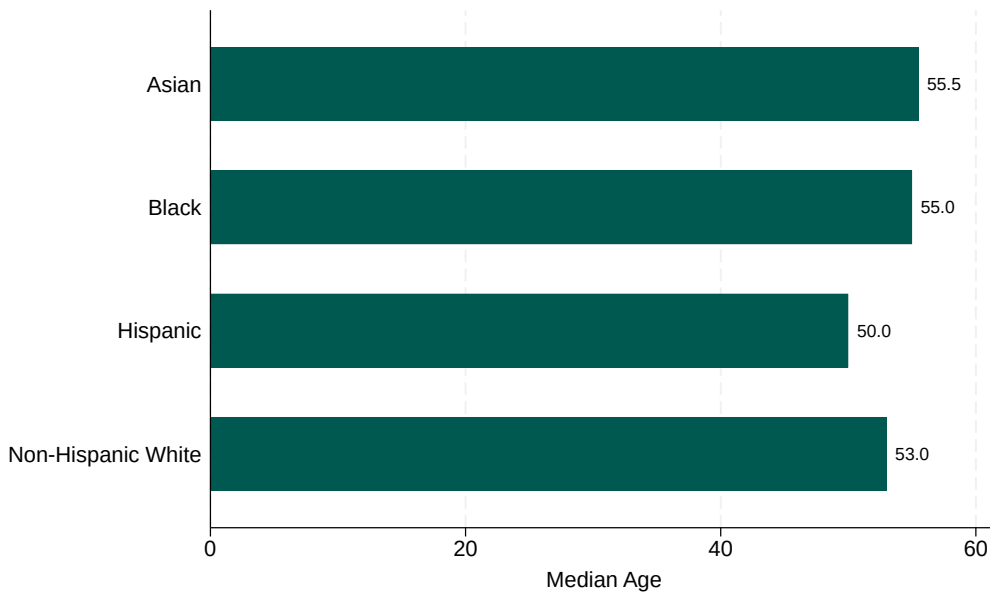
## LOCATION AT DEATH

Around 17% of people who died while experiencing homelessness were sheltered at their time of death. The remaining 83% of people who died while experiencing homelessness were found outdoors or in a place not meant for human habitation such as a car or abandoned building. Female decedents were more likely to be sheltered compared to male decedents. Thirty-one percent of females who died while experiencing homelessness were sheltered compared to 14% of male decedents.

Note: For the purpose of this report, “sheltered” was defined as not having a permanent residence and staying in a temporary arrangement. These arrangements include shelters, hotels, motels, and other people’s residences.

# Demographic Comparisons

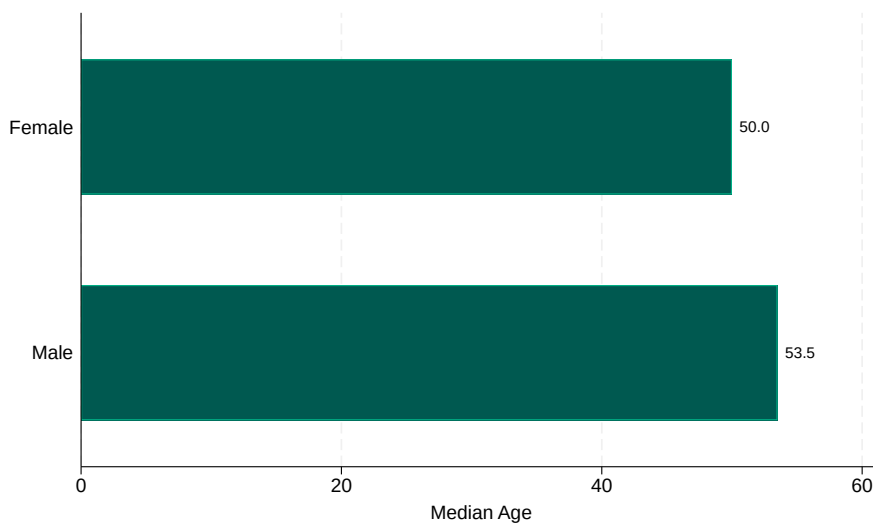
Figure 8. Median age by race



## AGE BY RACE

Asian and Black decedents had the highest median age of death, while Hispanic decedents had the lowest median age of death. This may be because a higher proportion of Black and Asian individuals died of natural causes, while a higher proportion of Hispanic individuals died of non-natural causes.

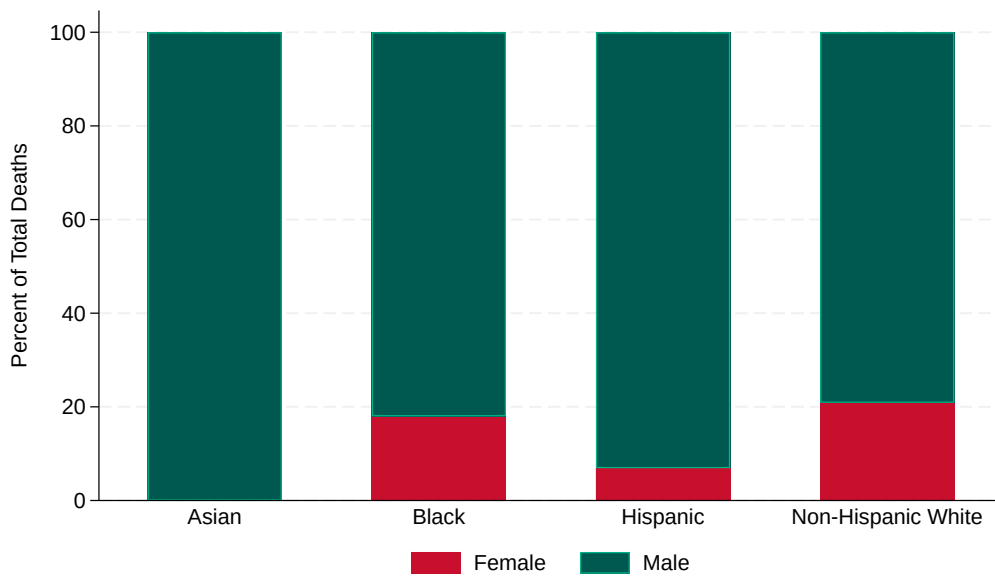
Figure 9. Median age by sex



## AGE BY SEX

Females experiencing homelessness died at a lower median age than males. As explored later in the report, females more frequently died of accidental causes than males, which may explain the lower median age of death.

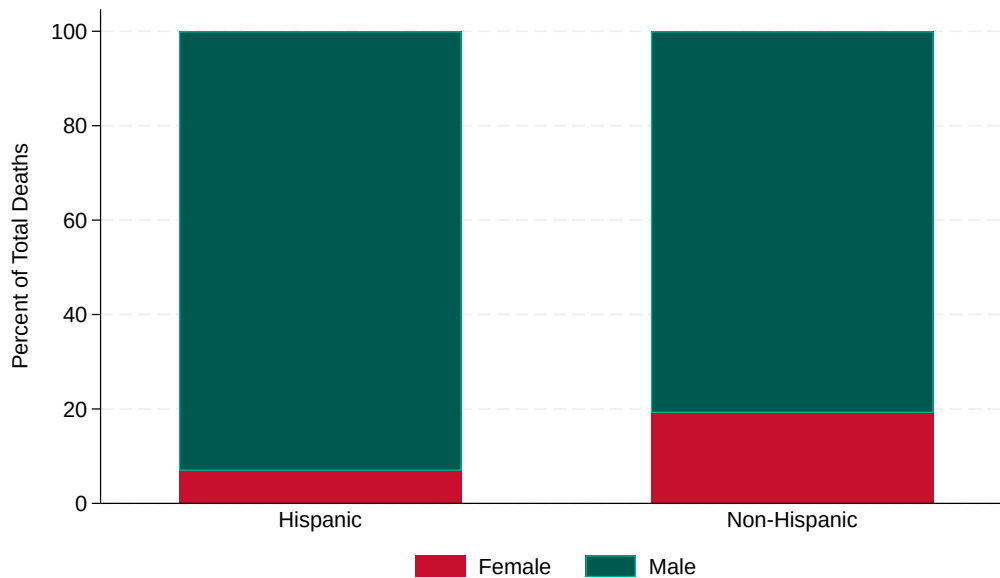
Figure 10. Count of race by sex



## RACE BY SEX

For each race, fewer than 25% of decedents were female. There was little variation in proportion of each sex based on race.

Figure 11. Count of ethnicity by sex

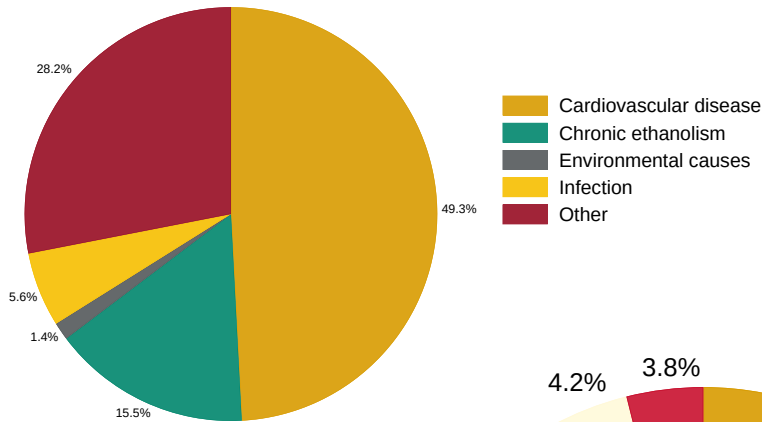


## ETHNICITY BY SEX

Roughly 7% of Hispanic decedents were female, while 21% of non-Hispanic decedents were female.

# Manner of Death Overview

Figure 12. Most common causes of natural death



Nearly half of deaths were from accidents not involving a motor vehicle, followed by natural deaths. A large proportion of accidental deaths are due to drug overdose, and several were due to environmental causes such as drowning and hypothermia. Nearly half of natural deaths were due to cardiovascular disease, followed by chronic alcohol use and infections.

Figure 13. Distribution of manners of death

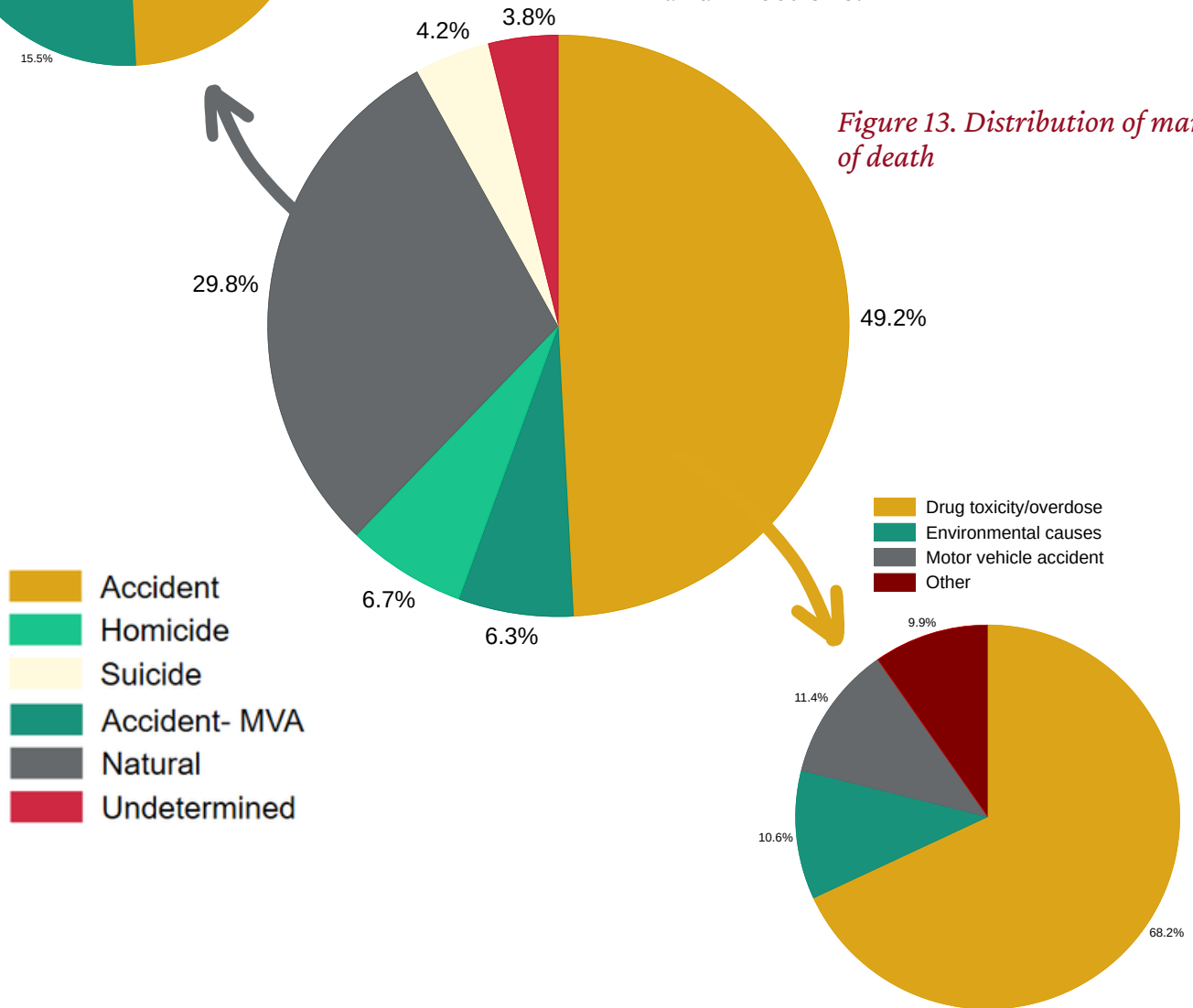
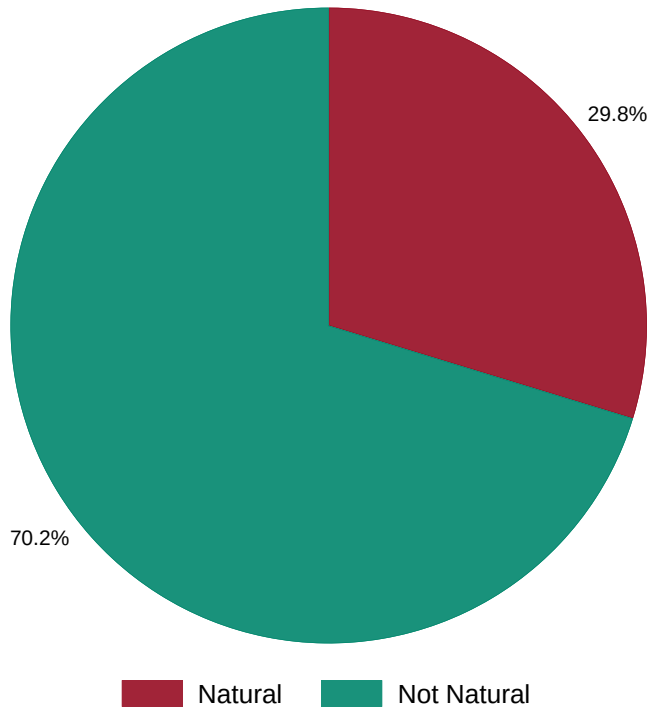


Figure 14. Most common causes of accidental death

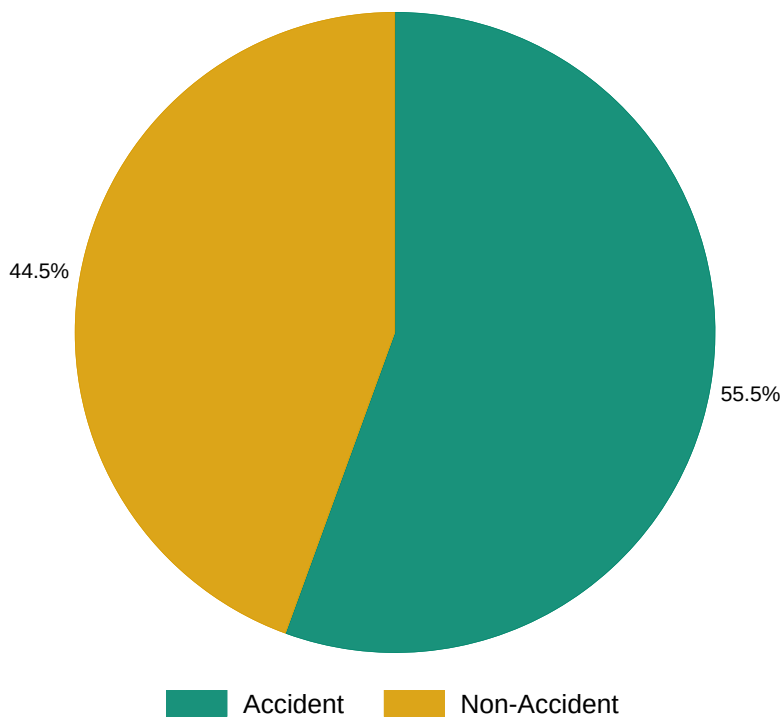
Figure 15. Percent of natural deaths



## NATURAL DEATHS

Only 30% of deaths were due to natural causes. The remaining 70% were due to accidents, suicides, and homicides.

Figure 16. Percent of accidental deaths



## ACCIDENTAL DEATHS

Approximately 55% of deaths were accidental, which includes overdoses and motor vehicle accidents but not suicides or homicides. Around 45% of deaths were non-accidental.

# Demographics by Manner of Death

## RACE AND MANNER OF DEATH

Non-Hispanic white and Black decedents experienced a higher proportion of accidental deaths and a lower proportion of natural deaths compared to Asian and Hispanic individuals. Asian individuals appear to have a high proportion of suicides, but this can be attributed to the low sample size, as shown in the table below.

Figure 17. Proportions of manner of death by race

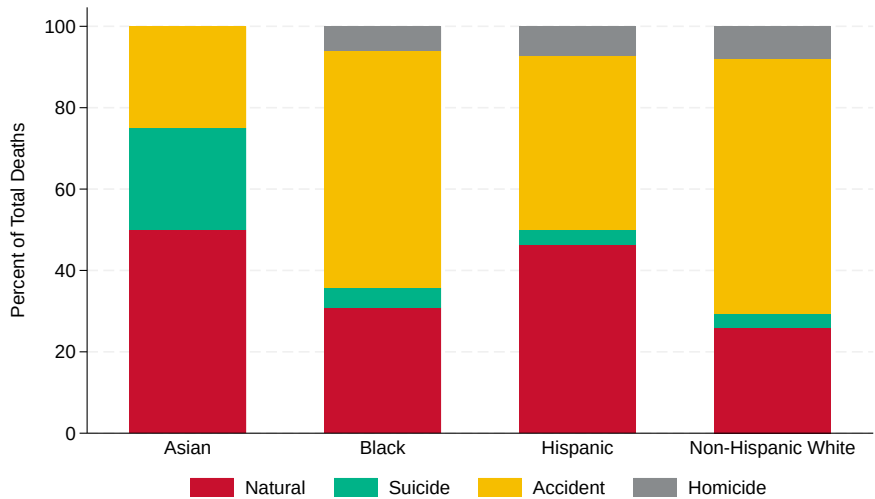
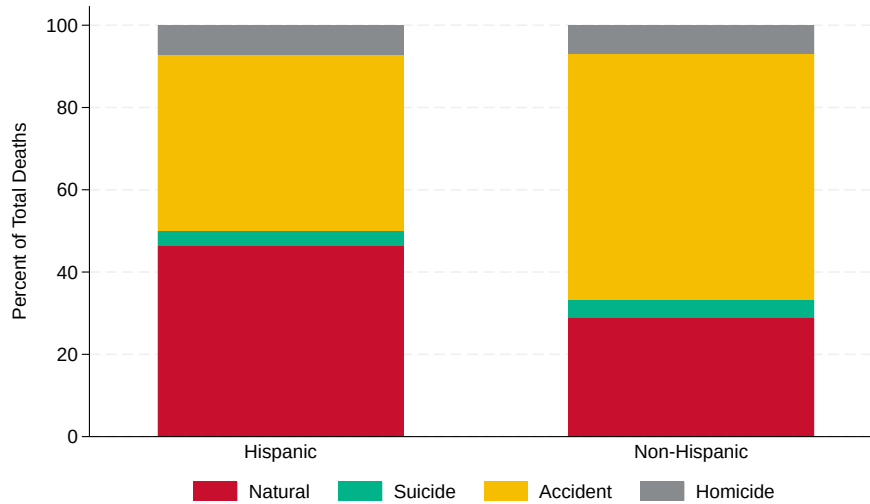


Table 2. Counts of manner of death by race

Race	Manner of Death			
	Natural	Suicide	Accident	Homicide
Asian	2	1	1	0
Black	26	4	49	5
Hispanic	13	1	12	2
Non-Hispanic White	29	4	70	9



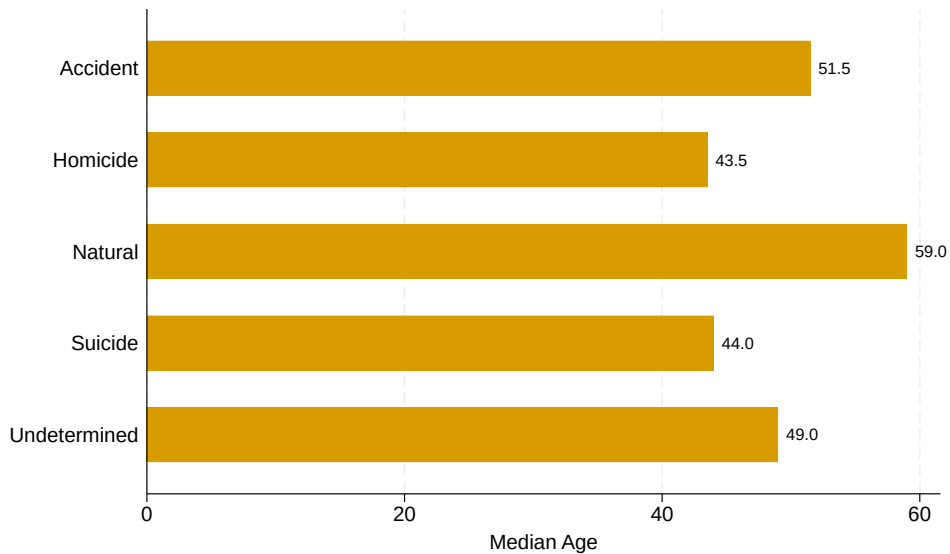
Figure 18. Proportions of manner of death by ethnicity



## ETHNICITY AND MANNER OF DEATH

Non-Hispanic individuals had a higher proportion of accidental deaths and a lower proportion of natural deaths compared to Hispanic individuals.

Figure 19. Median age by manner of death



## AGE AND MANNER OF DEATH

The median age of natural deaths was substantially higher for natural deaths compared to accidents, homicides, and suicides. Homicides and suicides had the lowest median ages.

# SEX AND MANNER OF DEATH

The composition of manner of death appears similar for males and females experiencing homelessness. A slightly larger proportion of females died of accidents compared to males. Some sex differences may be due to the significantly smaller number of female decedents than male decedents.

Figure 20. Manner of death by sex

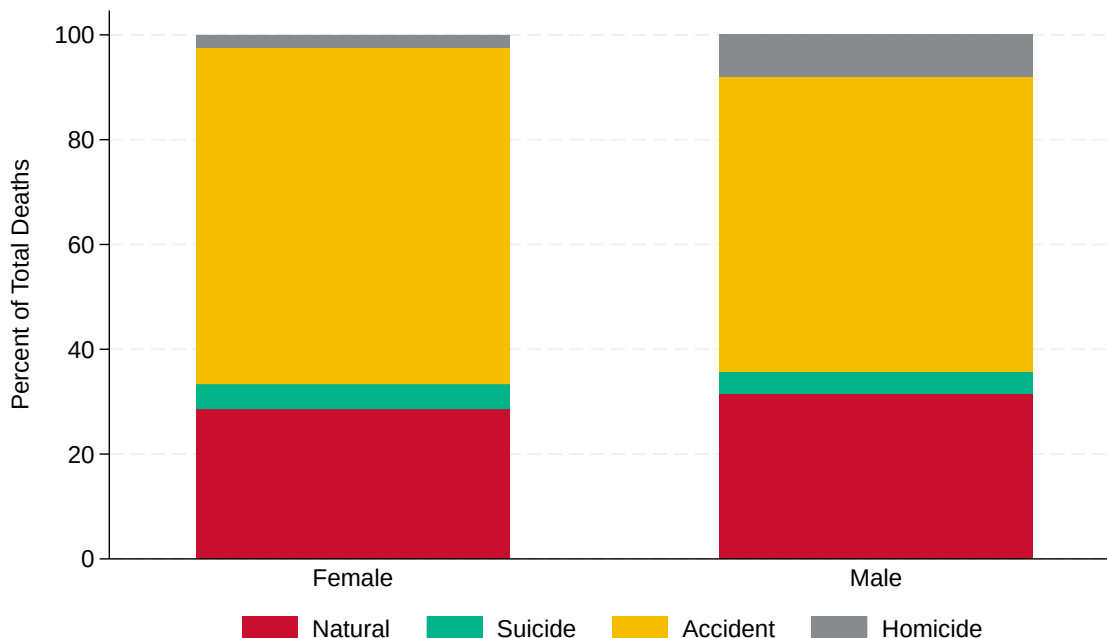
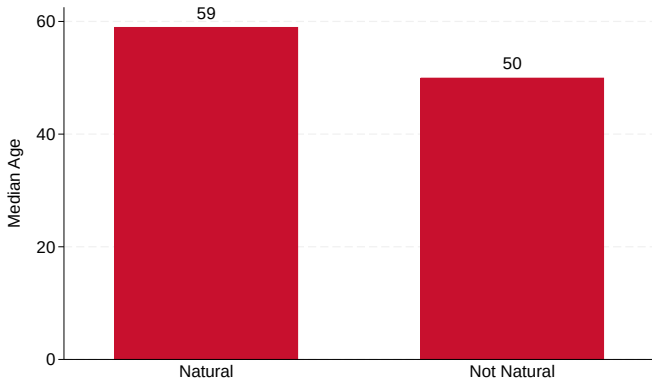


Table 3. Counts of manner of death by sex

Sex	Manner of Death			
	Accident	Natural	Homicide	Suicide
Female	27	12	1	2
Male	105	59	15	8

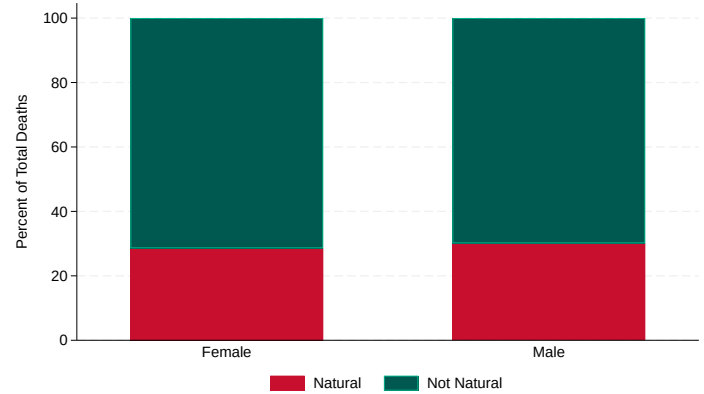
# Demographics for Natural Deaths

Figure 21. Median age for natural and non-natural deaths



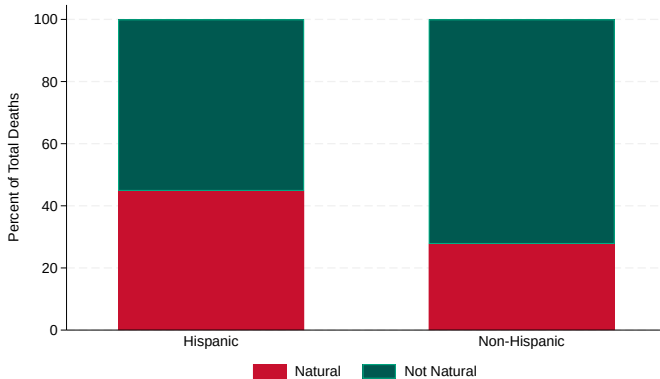
The median age at death was higher for natural deaths than non-natural deaths.

Figure 22. Proportion of natural deaths by sex



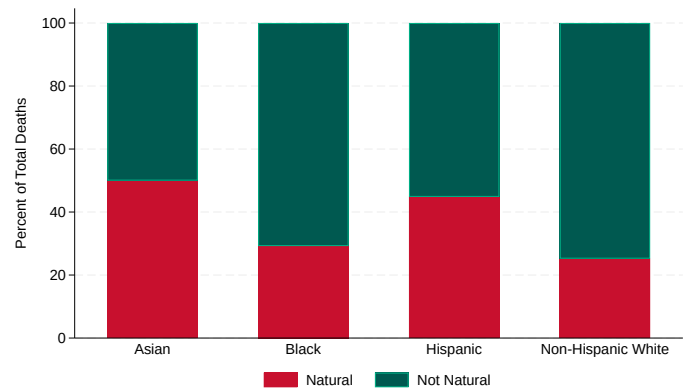
The proportion of natural deaths was about equal for males and females.

Figure 23. Proportion of natural deaths by ethnicity



Hispanic individuals had a higher proportion of natural deaths compared to non-Hispanic individuals.

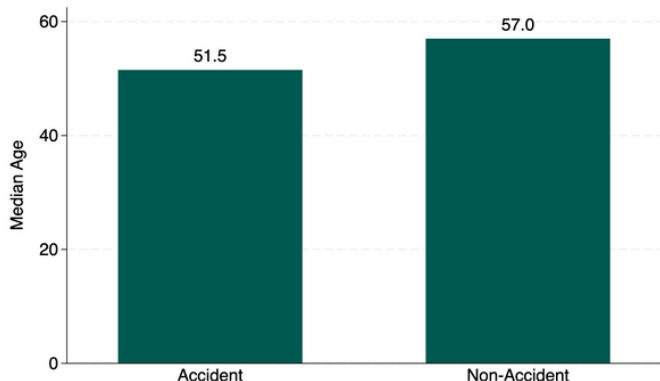
Figure 24. Proportion of natural deaths by race



Non-Hispanic white and Black individuals had a lower proportion of natural deaths compared to Hispanic and Asian individuals.

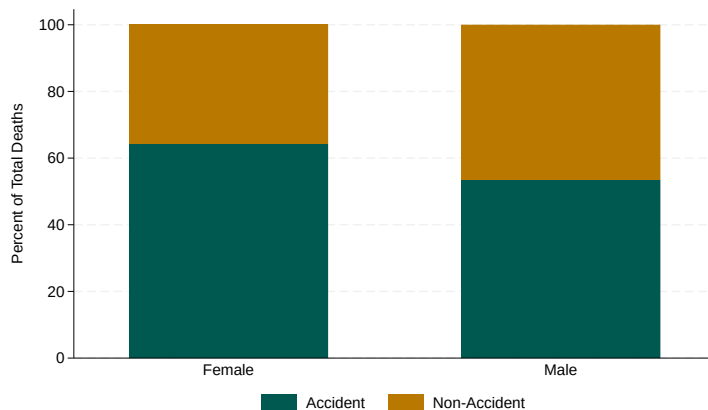
# Demographics for Accidental Deaths

Figure 25. Median age for accidental and non-accidental deaths



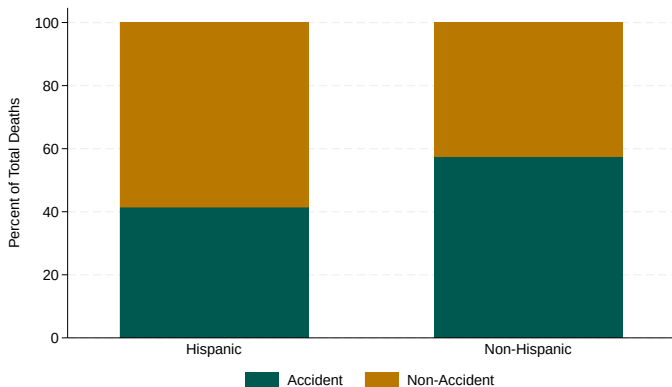
The median age for non-accidental deaths was higher than the median age for accidental deaths. Non-accidental deaths include natural deaths, homicides, and suicides. Notably, suicides and homicides have the lowest median ages of all manners of death, limiting the interpretability of this finding.

Figure 26. Proportion of accidental deaths by sex



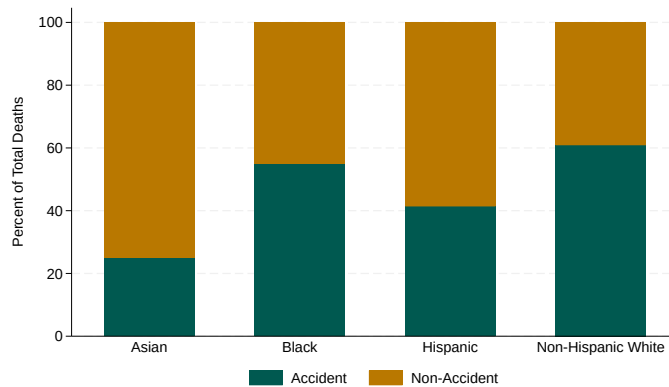
Females had a higher proportion of accidental deaths than males. The higher proportion of accidental deaths among females may explain why females died at a lower median age than males, as accidental deaths tend to occur at a younger age than natural deaths. This points to manner of death as a potential confounding variable.

Figure 27. Proportion of accidental deaths by ethnicity



Non-Hispanic individuals had a higher proportion of accidental deaths, while Hispanic individuals had a higher proportion of non-accidental deaths.

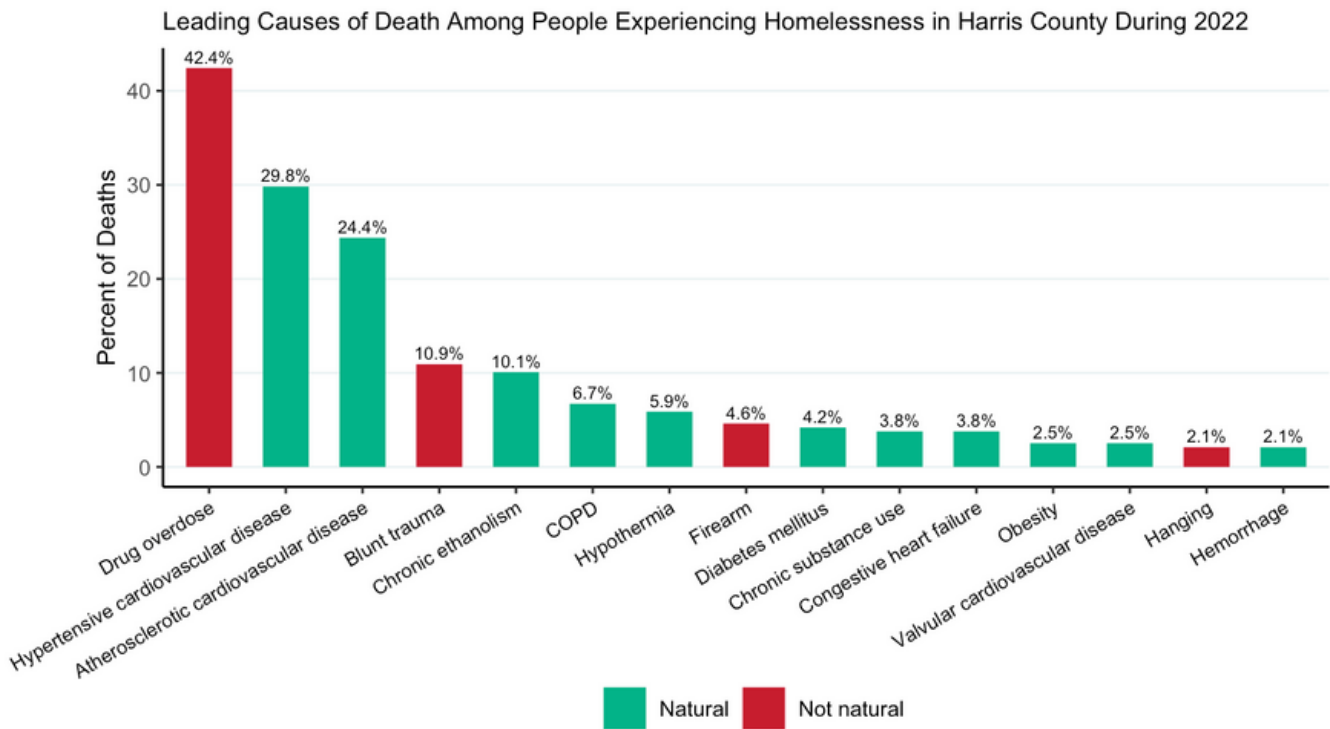
Figure 28. Proportion of accidental deaths by race



The proportion of non-accidental deaths was the highest among Asians, while the proportion of accidental deaths was highest among non-Hispanic whites.

# Leading Causes of Death

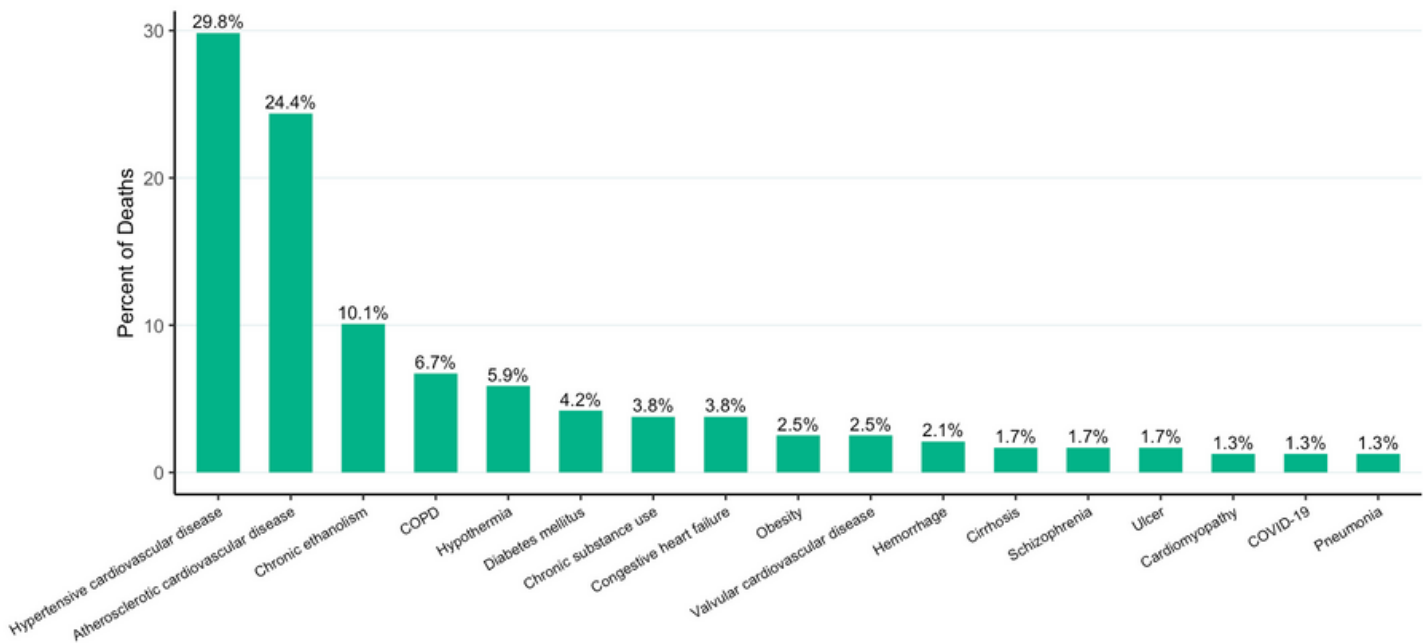
Figure 29. Leading causes of death



\*Percentages add up to more than 100% due to overlapping causes of death.

The leading cause of death among those experiencing homelessness in Harris County is drug overdose (not natural), also called acute drug toxicity. This is followed by hypertensive and atherosclerotic cardiovascular disease (natural), and blunt trauma (not natural). Many drug overdose deaths involved additional primary causes of death, such as cardiovascular disease and chronic obstructive pulmonary disease (COPD). It is unclear whether the chronic use of substances leads to the development of these chronic diseases or having these underlying conditions makes fatal drug toxicity more likely.

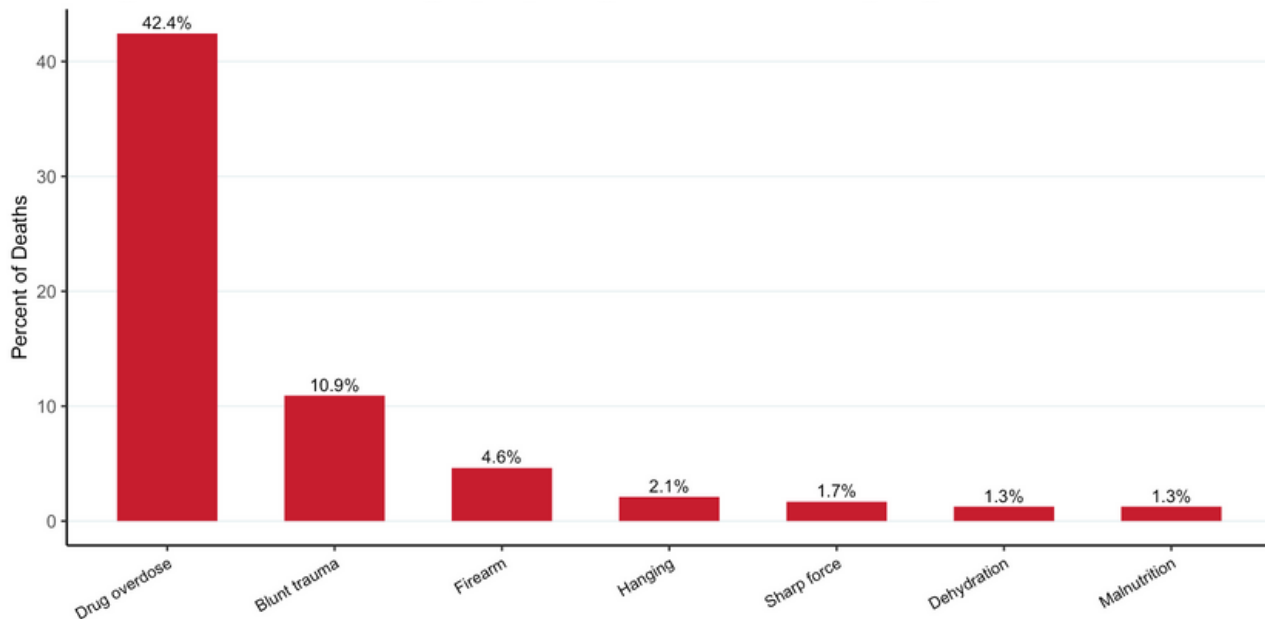
*Figure 30. Leading causes of natural death*



\*Percentages add up to more than 100% due to overlapping causes of death.

Of the leading natural causes of death, hypertensive and atherosclerotic cardiovascular disease were the most common, followed by chronic ethanolism and COPD. Most natural causes of death are associated with chronic diseases, with hypothermia and COVID-19 being two interesting exceptions.

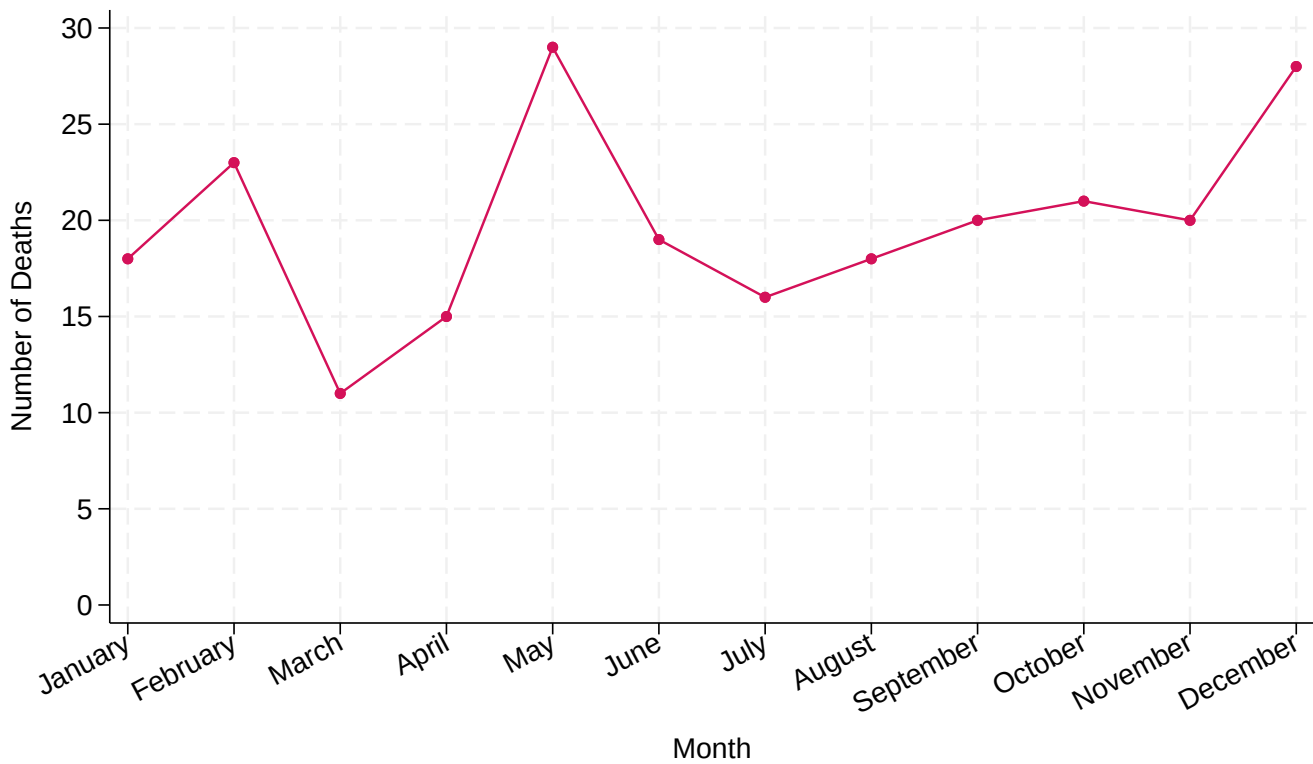
*Figure 31. Leading causes of non-natural death*



Of the leading accidental causes of death, drug overdoses were by far the most frequent. Other frequent causes include blunt trauma, firearm, hanging, sharp force, dehydration, and malnutrition.

# Seasonality of Homeless Mortality

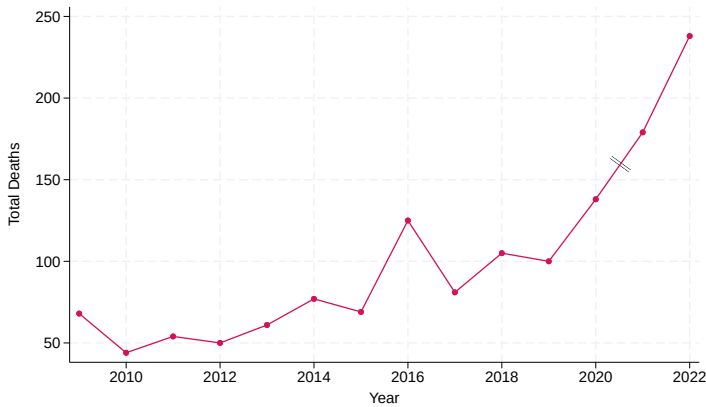
Figure 32. Number of deaths per month during 2022



Overall, the seasonality of deaths appears variable, likely due to the low sample size. There was a peak in deaths among people experiencing homelessness in May, followed by December and February. There were fewer deaths during March.

# Overdose Deaths

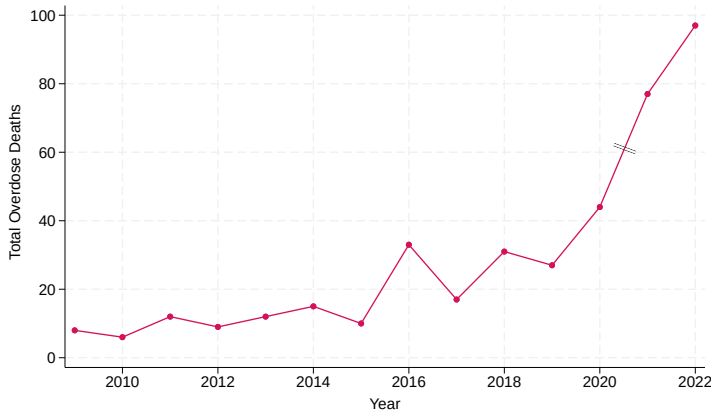
*Figure 33. Count of total deaths across time*



\*Methods changed in 2021 and 2022, resulting in improved case identification

To put the findings on overdose deaths into context, it should be noted that the count of total deaths among people experiencing homelessness over time has significantly increased in recent years. Case sensitivity improved for the 2021 and 2022 data, but previous years' data suggest that the count of deaths would have still increased.

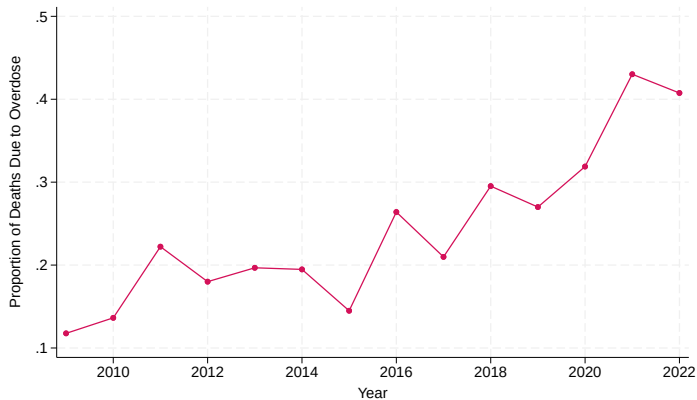
*Figure 34. Count of overdose deaths across time*



\*Methods changed in 2021 and 2022, resulting in improved case identification

Similar to the trend for total deaths, the count of deaths attributed to acute drug toxicity (also referred to as “overdose deaths”) has significantly increased in recent years.

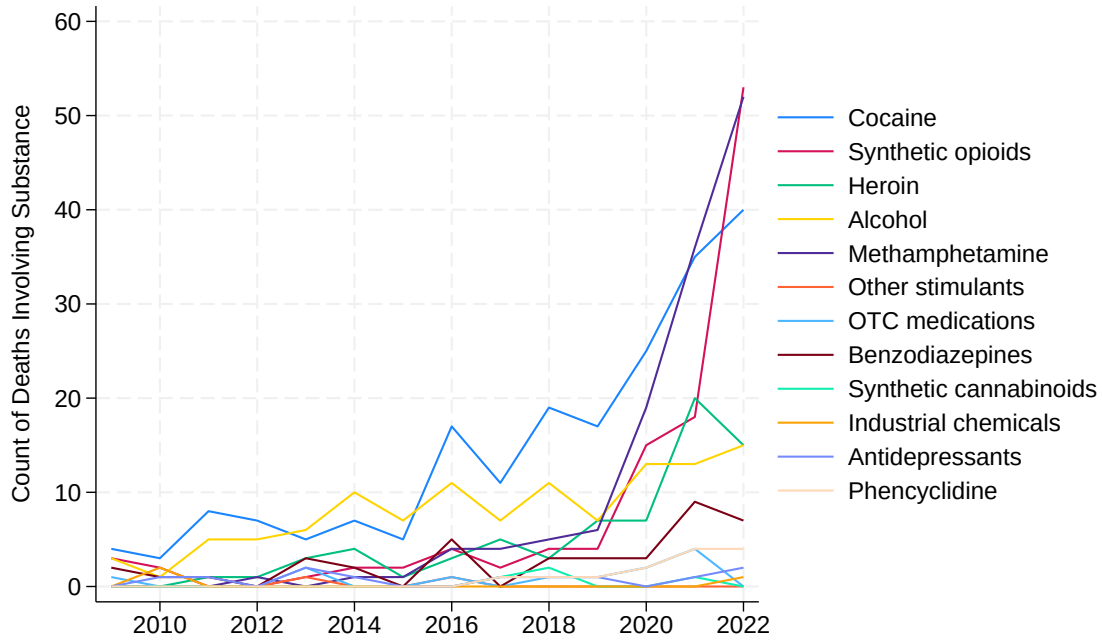
*Figure 35. Proportion of deaths due to overdose across time*



While the increase in overdose deaths depicted in the previous figure may appear to be attributable to the increase in total deaths, Figure 35 shows that the proportion of deaths due to overdose maintains this upward trend. There was a slight decrease in the proportion of deaths due to overdose in 2022. Future years' data will be needed to determine if this is a random fluctuation or indicates a decrease in fatal overdoses.

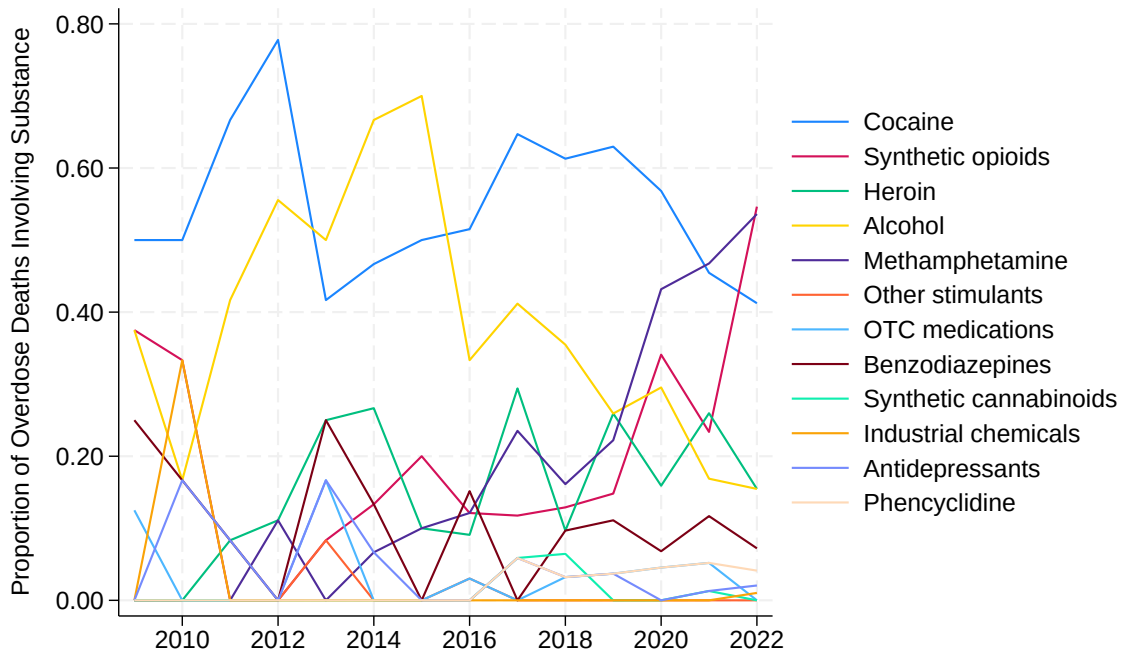


*Figure 36. Count of deaths involving substances over time*



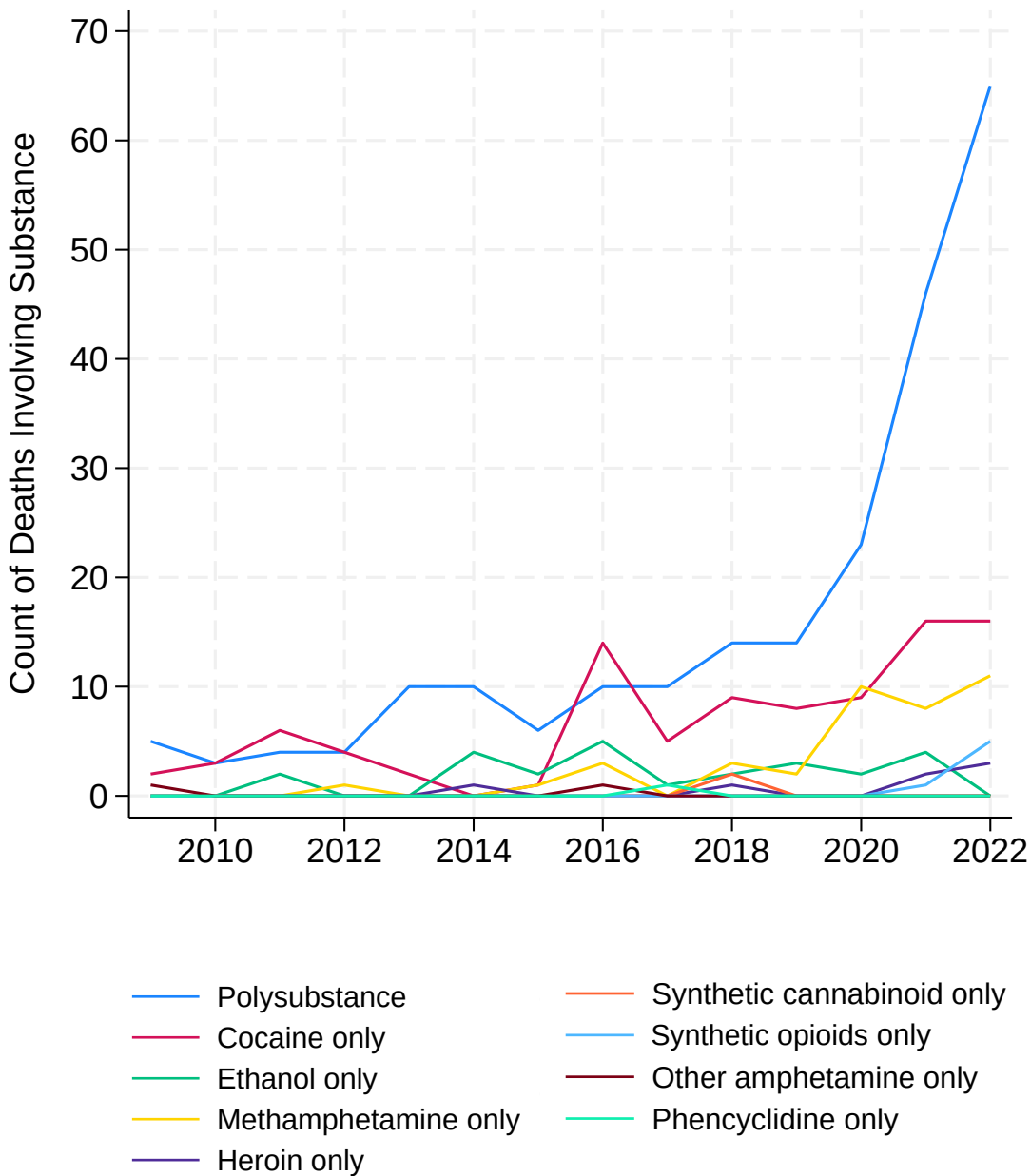
When broken down by substance type, prescription opioids—primarily fentanyl—are involved in the highest number of deaths, which is closely followed by methamphetamine. Cocaine and alcohol had previously been involved in the majority of deaths and have become less prevalent in recent years.

*Figure 37. Proportion of overdose deaths involving substances over time*



When examined as a proportion of the total overdose deaths for each year, the increased involvement of prescription opioids and methamphetamine is evident. The involvement of alcohol and, to a lesser extent, cocaine has decreased in recent years.

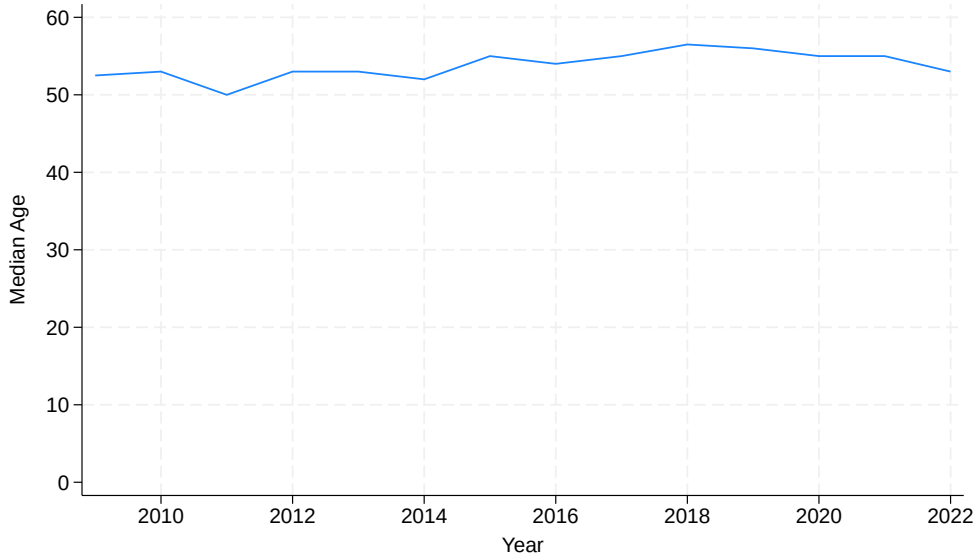
Figure 38. Single- versus multiple-substance overdose deaths over time



While the previous graphs report every substance category involved in each death, this graph creates a distinction between deaths involving a single substance and deaths involving multiple substances—called polysubstance use or polypharmacy. This clearly indicates that the frequency of deaths involving the mixing of substances has substantially increased since 2019, while single substance deaths have only moderately increased.

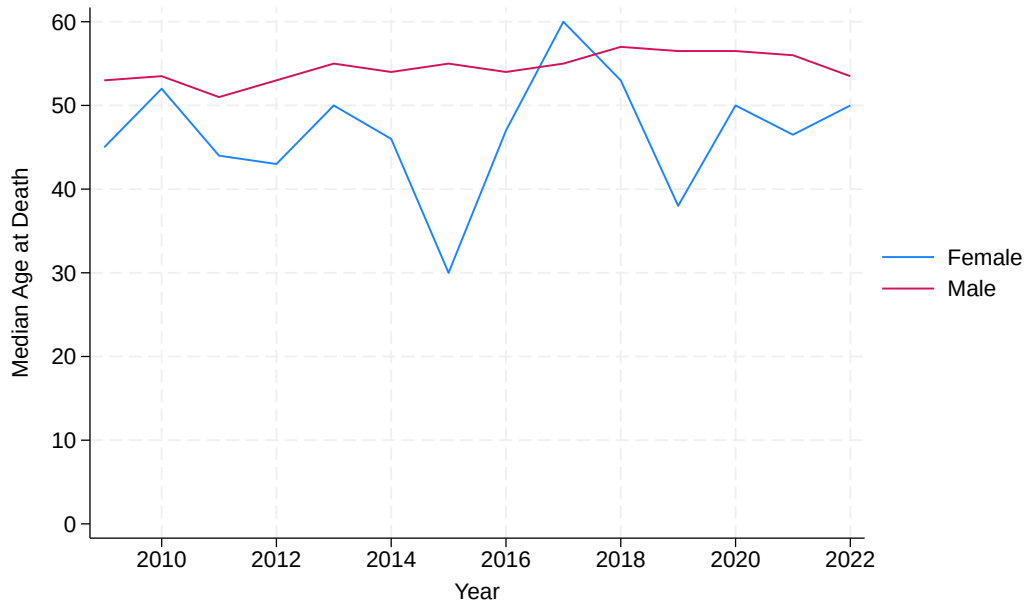
# Longitudinal Age Trends

*Figure 39. Median age at death over time*



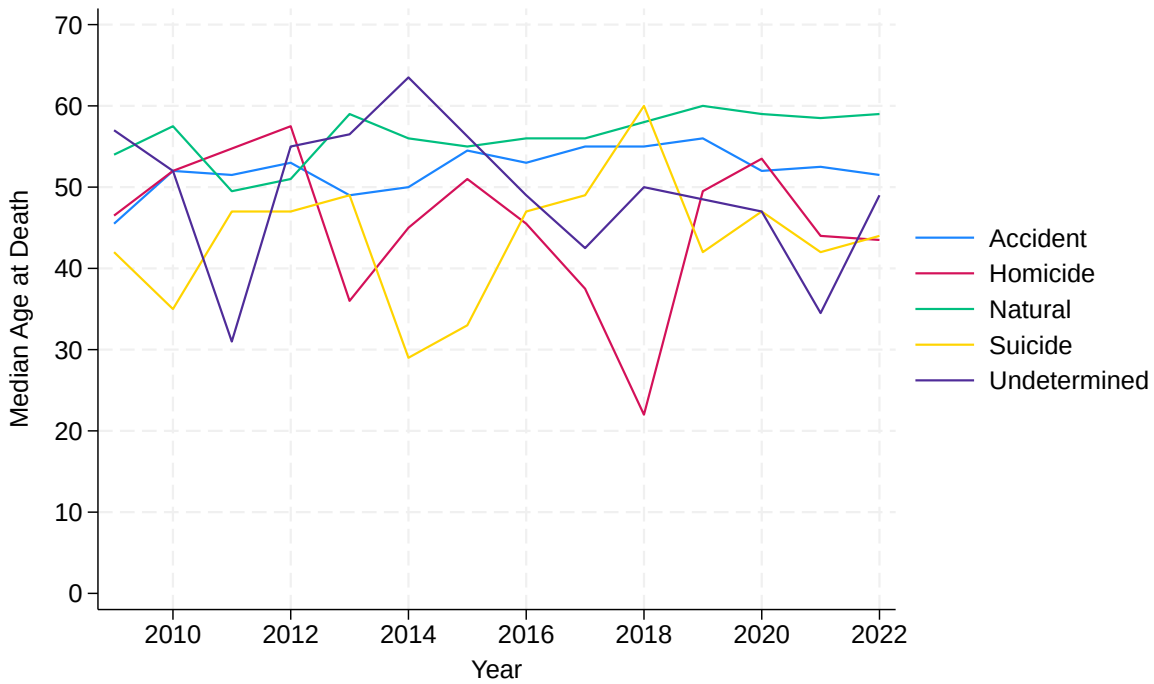
The median age of people who died while experiencing homelessness has remained relatively stable since 2009.

*Figure 40. Median age by sex over time*



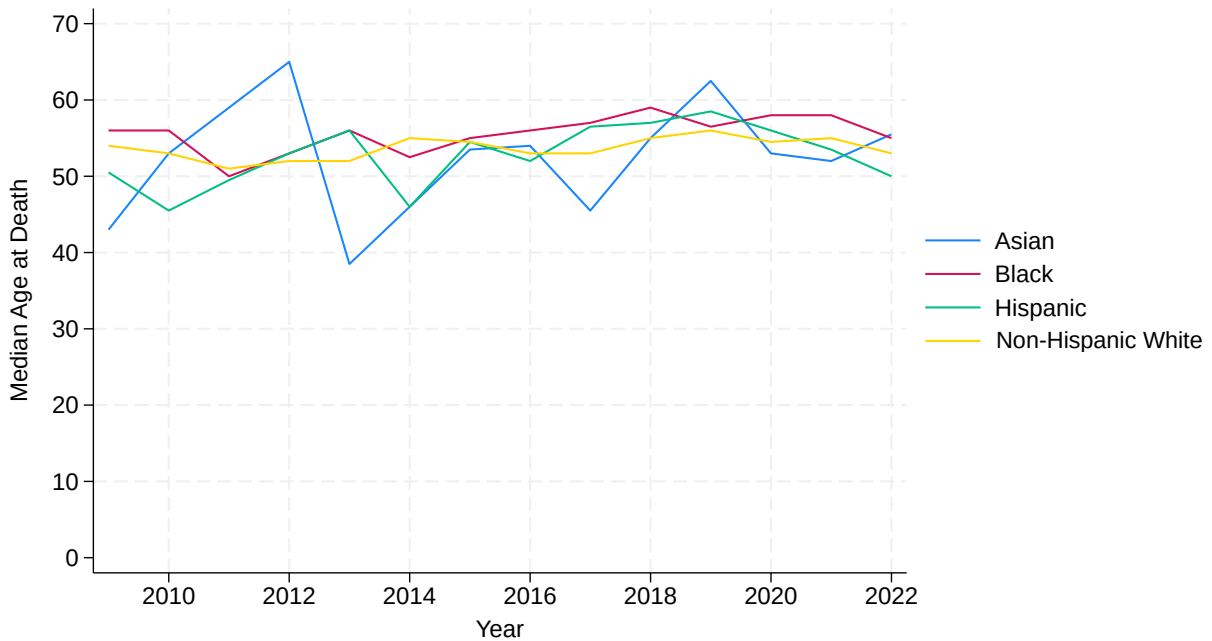
When stratified by biological sex, the median age of female decedents shows large fluctuations, which is likely due to the low number of female decedents in the sample.

Figure 41. Median age by manner of death over time



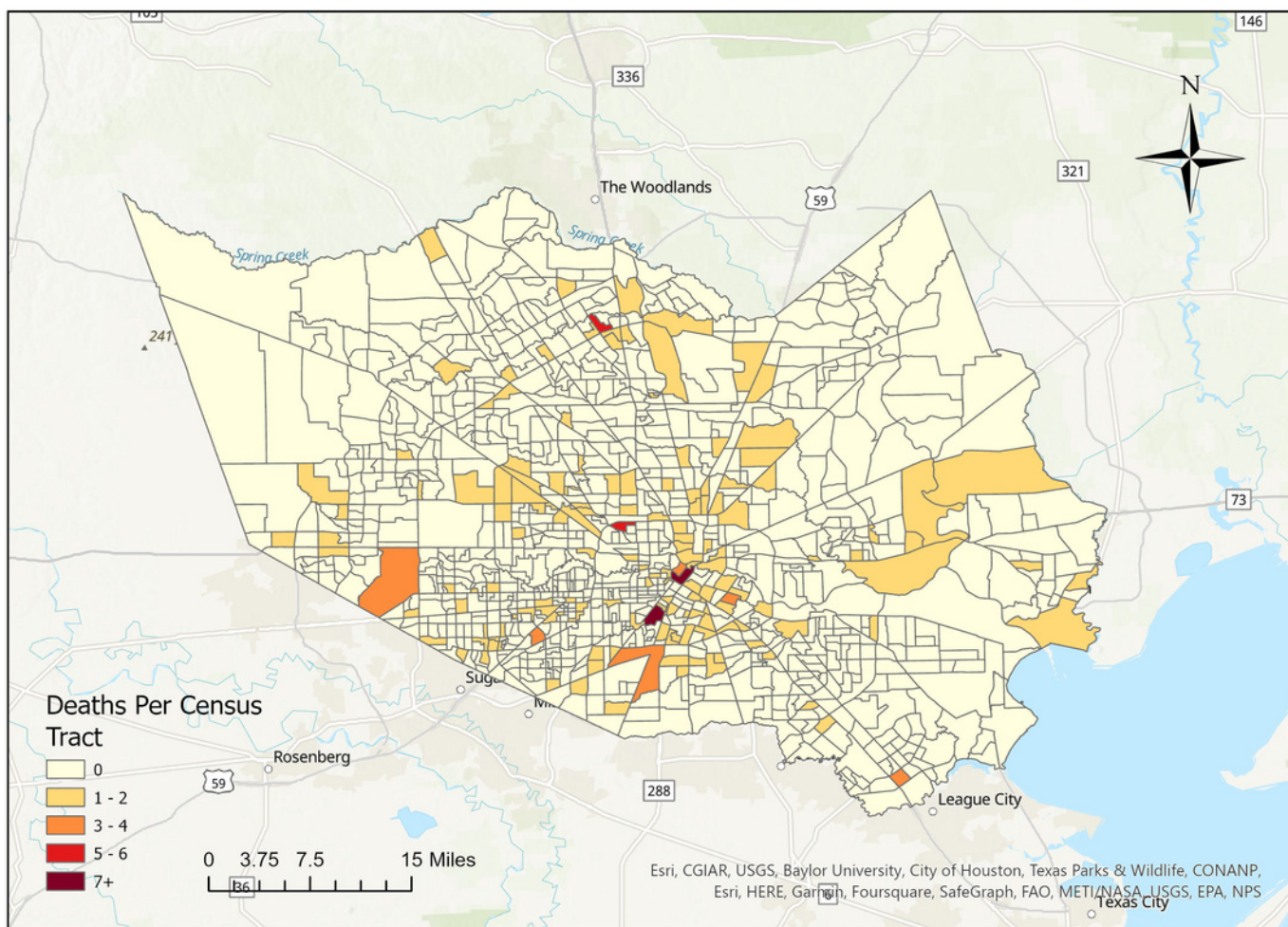
Generally, natural deaths occur at a higher median age than accidental deaths. Suicides and homicides generally occur at the youngest median ages, with large fluctuations due to the low frequency of these manners of death. Median age of natural death has increased slightly over time.

Figure 42. Median age by race over time



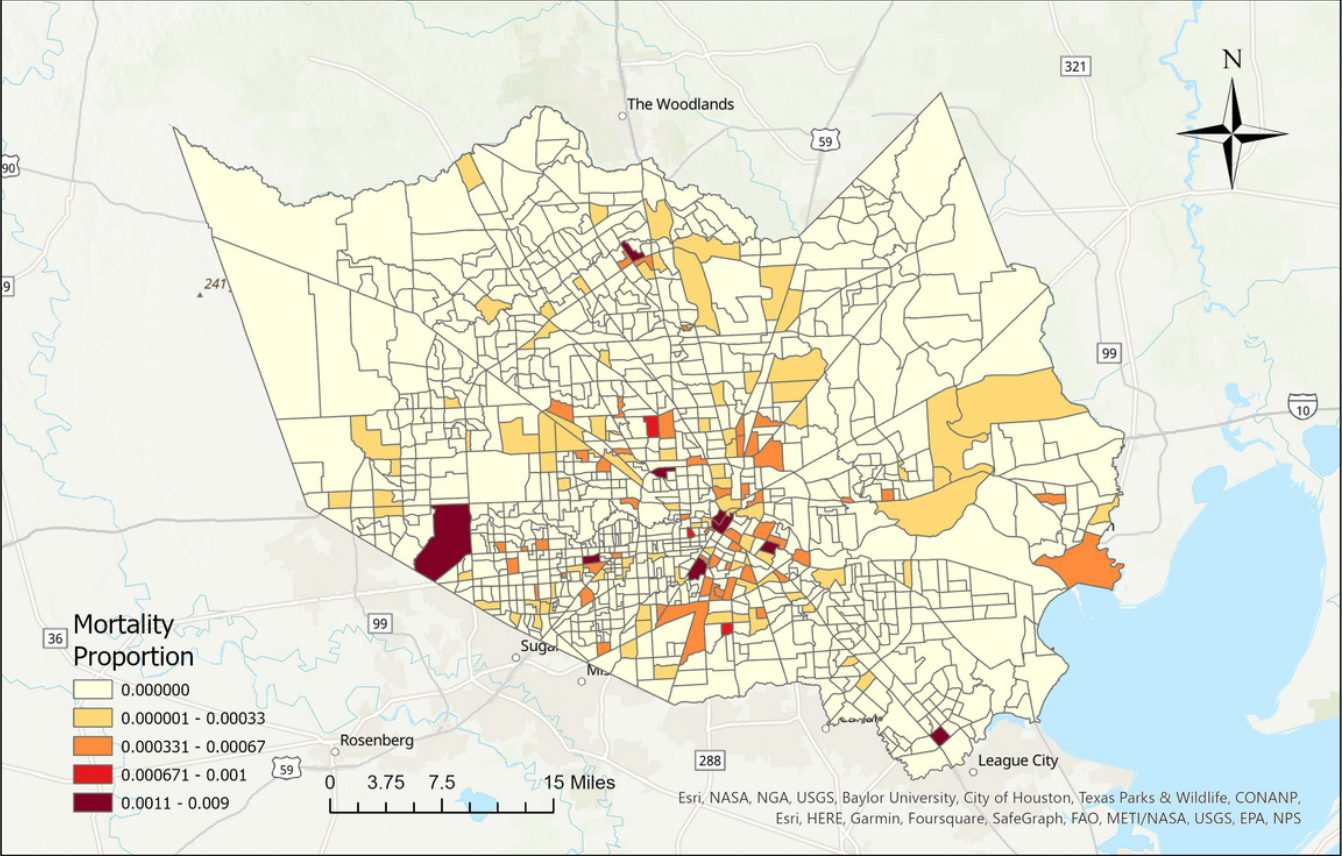
Black individuals have generally maintained a higher median age at death compared to non-Hispanic white and Hispanic individuals. The median age of Hispanic decedents has decreased slightly since 2019. Large fluctuations for Asian decedents is due to the consistently low sample size.

*Figure 43. Geographic distribution of deaths among people experiencing homelessness in Harris County during 2022*



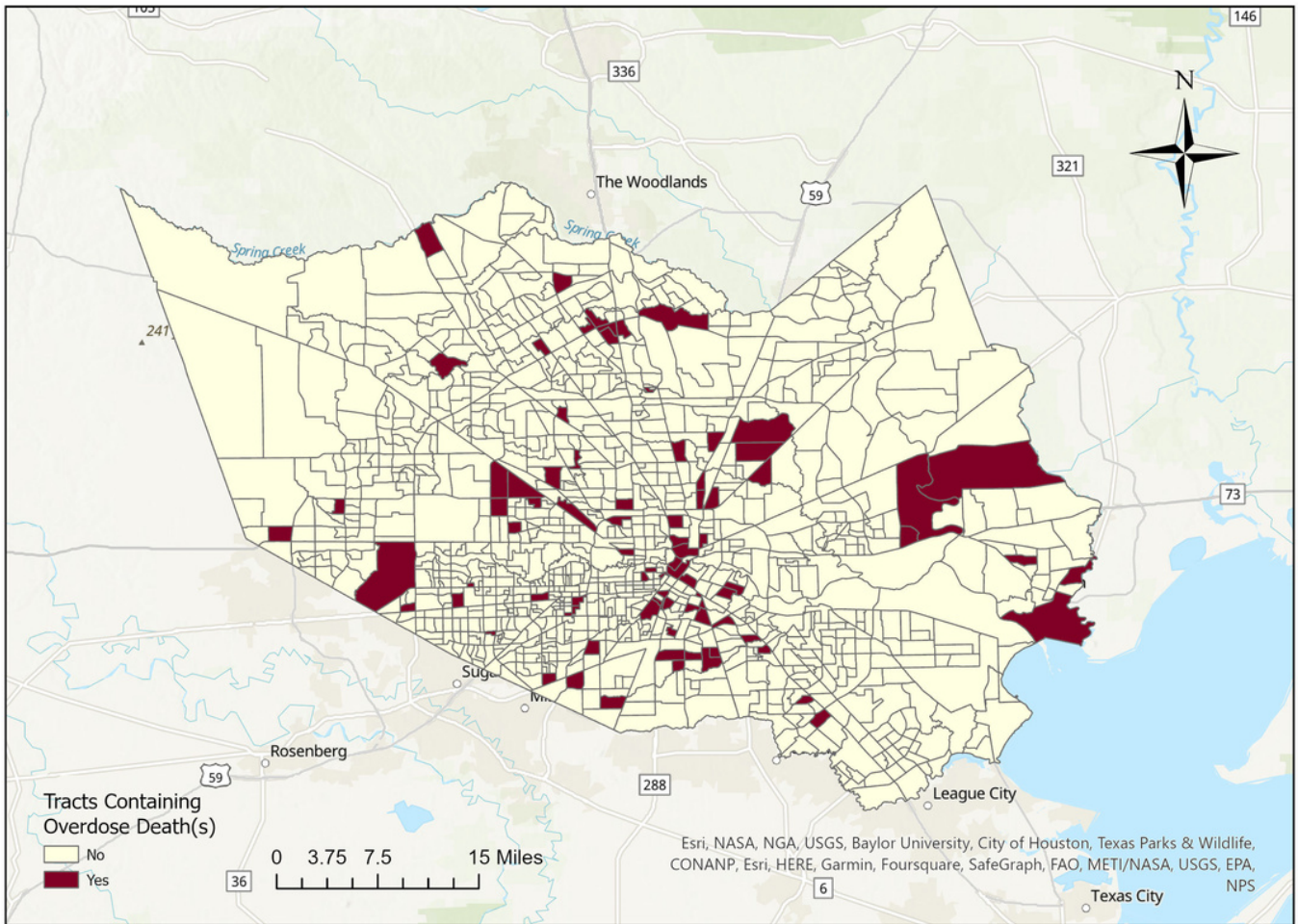
Homeless mortality, and homelessness in general, is a geographically widespread issue. While there are generally less than 10 cases in each census tract, cases can be found throughout Harris County. The four census tracts with the highest number of deaths include downtown Houston, The Medical Center, the northwest corner of 610, and a tract just west of the intersection of FM1960 and I-45. Each of these tracts have major hospitals that serve their surrounding areas, which partially accounts for the increases in cases in their areas.

*Figure 44. Proportion of deaths among people experiencing homelessness in 2022 compared to census population*



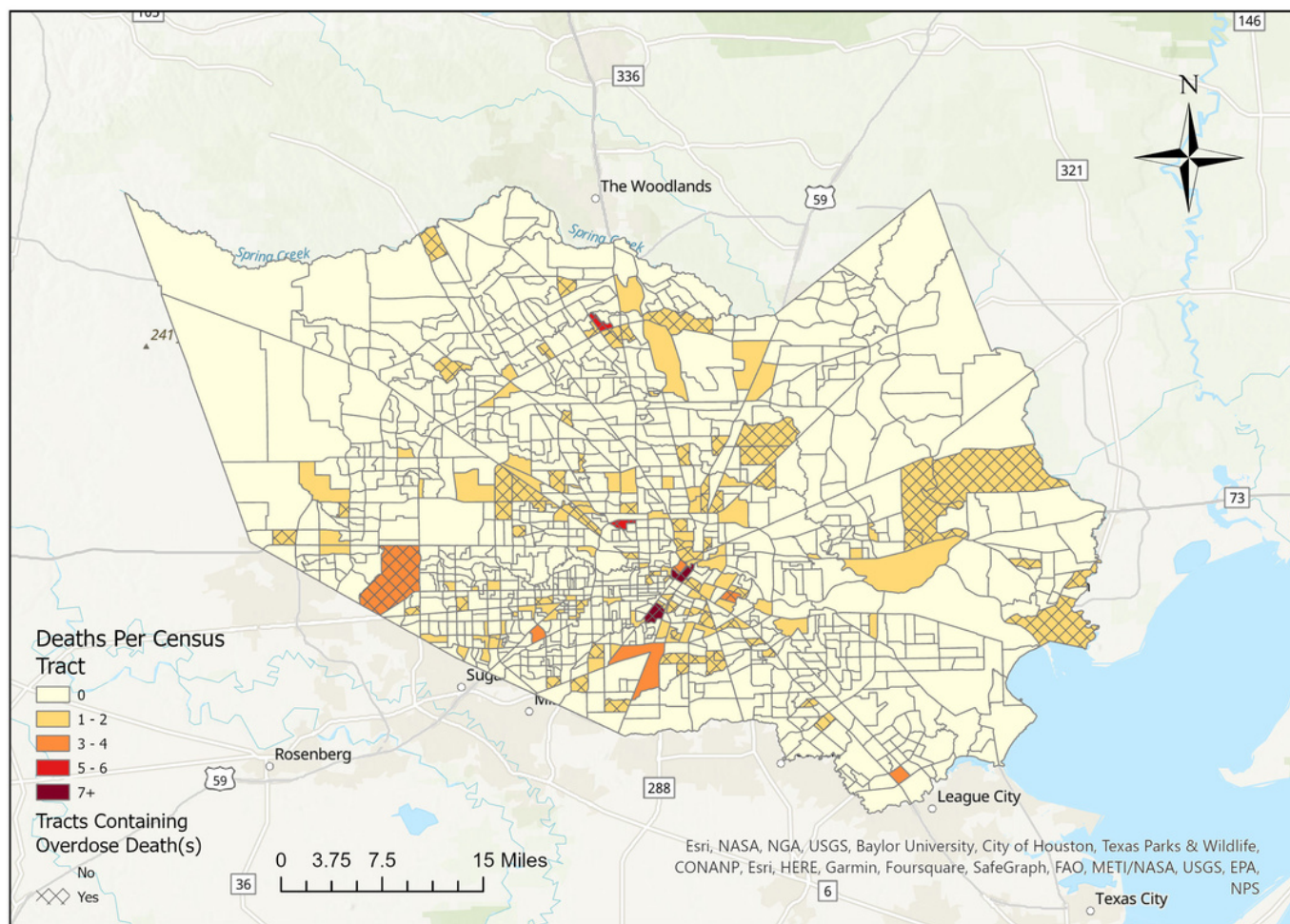
Many census tracts emerge as having large proportions of homeless mortality when compared to the census population for each tract. For instance, the George Bush Park area has a high proportion of homeless deaths, as the area is largely undeveloped. While interesting, it is difficult to draw conclusions from this map due to the extremely low number of deaths per census tract.

*Figure 45. Geographic distribution of drug toxicity deaths among people experiencing homelessness in Harris County during 2022*



Similar to deaths due to all causes, deaths due to drug overdoses can be found all across Harris County. This suggests that people experiencing homelessness are able to access these substances from locations across the region and that widespread prevention efforts are needed.

Figure 46. Geographic distribution of deaths due to all causes and due to drug overdose in 2022



This visual further illustrates that overdose deaths are found in a large proportion of the census tracts containing homeless deaths due to any cause. Evidently, both overdose deaths and non-overdose deaths are not limited to particular regions within Harris County.



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