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**Step 2 - Explore the data by answering the following questions:**

**Dataset:** deaths-in-custody

**Number of Observations:** 8,373

**Number of Variables:** 17

**Regulated Domain in Law:** None

**Number of Protected Class Variables:** 3

	Protected Class	Law
<b>race</b>	Race	Civil Rights Act of 1964, 1991
<b>age</b>	Age	Age Discrimination in Employment Act of 1967
<b>gender</b>	Sex	Equal Pay Act of 1963; Civil Rights Act of 1964, 1991)

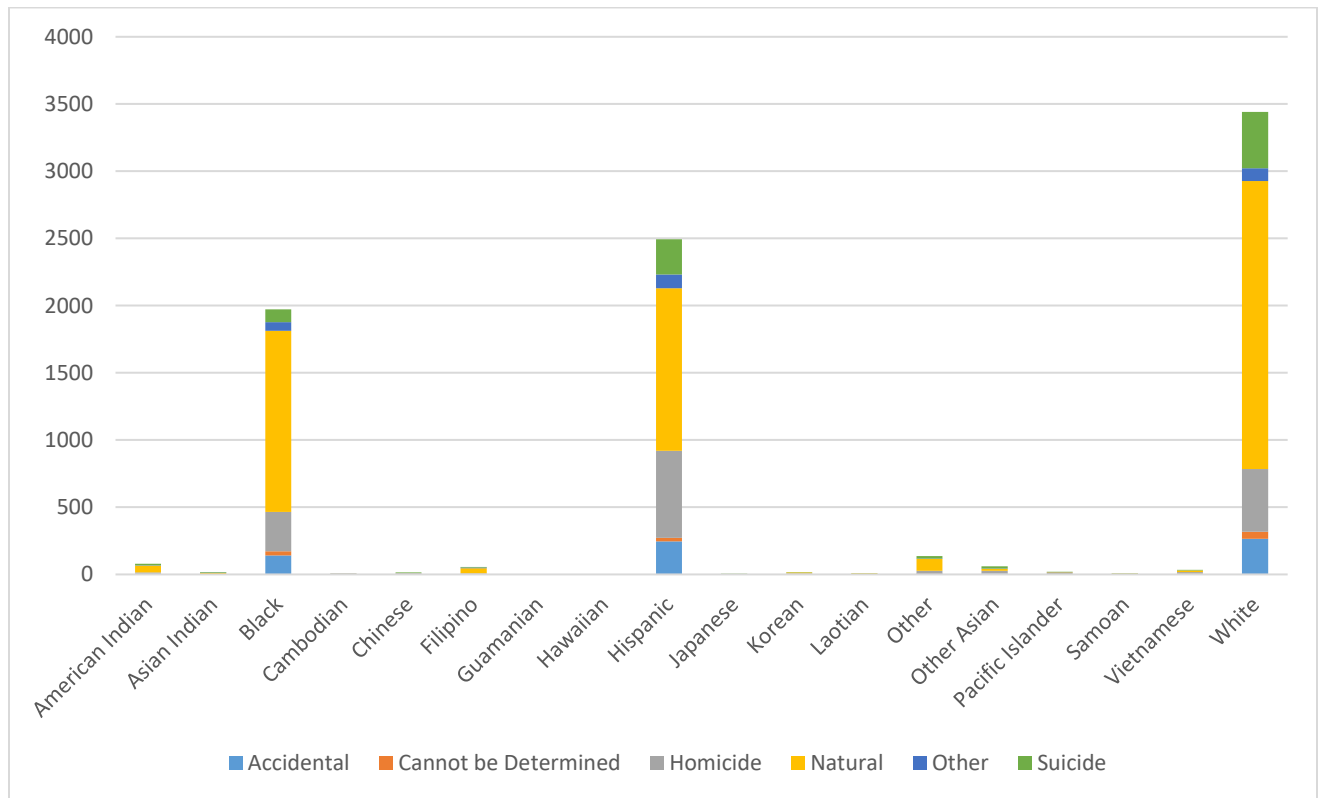
**Step 3 - Determine the relationships between dependent and independent variables:**

Independent Variable - Race	Dependent Variable – Manner of Death	Dependent Variable – Custody Status
Race - American Indian	Accidental: 6 Homicide: 9 Natural: 50 Other: 3 Suicide: 12	Booked - Awaiting Trial: 6 Booked - No Charges Filed: 2 Other: 10 Sentenced: 62
Race - Asian Indian	Cannot be Determined: 1 Homicide: 2 Natural: 8 Other: 1 Suicide: 6	Booked - Awaiting Trial: 9 Booked - No Charges Filed: 1 Other: 3 Sentenced: 5
Race - Black	Accidental: 142 Cannot be Determined: 29 Homicide: 294 Natural: 1348 Other: 65 Suicide: 94	Awaiting Booking: 20 Booked - Awaiting Trial: 211 Booked - No Charges Filed: 43 Other: 382 Sentenced: 1316
Race - Cambodian	Accidental: 1 Homicide: 2 Natural: 1 Other: 1	Booked - Awaiting Trial: 1 Other: 3 Sentenced: 1
Race - Chinese	Accidental: 2 Homicide: 3 Natural: 4 Other: 1 Suicide: 5	Booked - Awaiting Trial: 6 Other: 3 Sentenced: 6
Race - Filipino	Accidental: 1	Booked - Awaiting Trial: 6

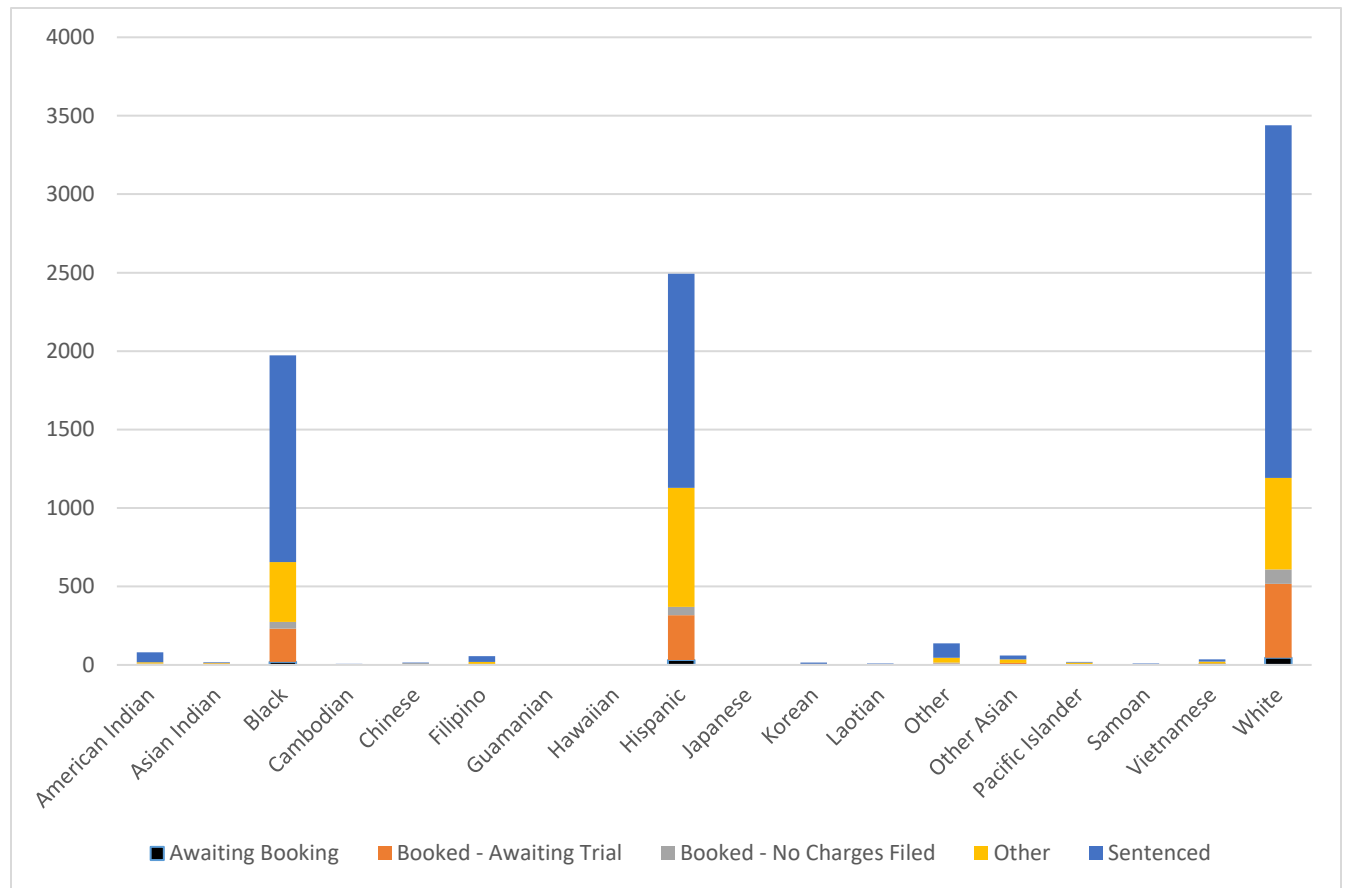
	Cannot be Determined: 1 Homicide: 6 Natural: 37 Other: 5 Suicide: 5	Booked - No Charges Filed: 1 Other: 12 Sentenced: 36
Race - Guamanian	Accidental: 1 Natural: 2	Sentenced: 3
Race - Hawaiian	Cannot be Determined: 1	Booked - Awaiting Trial: 1
Race - Hispanic	Accidental: 247 Cannot be Determined: 26 Homicide: 646 Natural: 1211 Other: 101 Suicide: 263	Awaiting Booking: 31 Booked - Awaiting Trial: 286 Booked - No Charges Filed: 54 Other: 758 Sentenced: 1365
Race - Japanese	Cannot be Determined: 1 Other: 1 Suicide: 2	Booked - Awaiting Trial: 1 Other: 1 Sentenced: 2
Race - Korean	Homicide: 7 Natural: 7 Suicide: 2	Booked - Awaiting Trial: 1 Other: 6 Sentenced: 9
Race - Laotian	Accidental: 1 Homicide: 2 Natural: 4 Suicide: 3	Booked - Awaiting Trial: 2 Other: 2 Sentenced: 6
Race - Other	Accidental: 7 Cannot be Determined: 2 Homicide: 19 Natural: 87 Other: 3 Suicide: 19	Booked - Awaiting Trial: 9 Booked - No Charges Filed: 7 Other: 30 Sentenced: 91
Race - Other Asian	Accidental: 6 Homicide: 20 Natural: 16 Other: 1 Suicide: 18	Booked - Awaiting Trial: 13 Booked - No Charges Filed: 1 Other: 22 Sentenced: 25
Race - Pacific Islander	Homicide: 11 Natural: 3 Other: 3 Suicide: 2	Booked - Awaiting Trial: 1 Other: 15 Sentenced: 3
Race - Samoan	Homicide: 5 Natural: 2 Suicide: 1	Other: 5 Sentenced: 3
Race - Vietnamese	Accidental: 4 Cannot be Determined: 2 Homicide: 11 Natural: 13 Suicide: 5	Awaiting Booking: 1 Booked - Awaiting Trial: 7 Booked - No Charges Filed: 2 Other: 12 Sentenced: 13

Race - White	Accidental: 265 Cannot be Determined: 52 Homicide: 468 Natural: 2142 Other: 94 Suicide: 419	Awaiting Booking: 45 Booked - Awaiting Trial: 471 Booked - No Charges Filed: 92 Other: 583 Sentenced: 2249
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**Race – Manner of Death Chart**

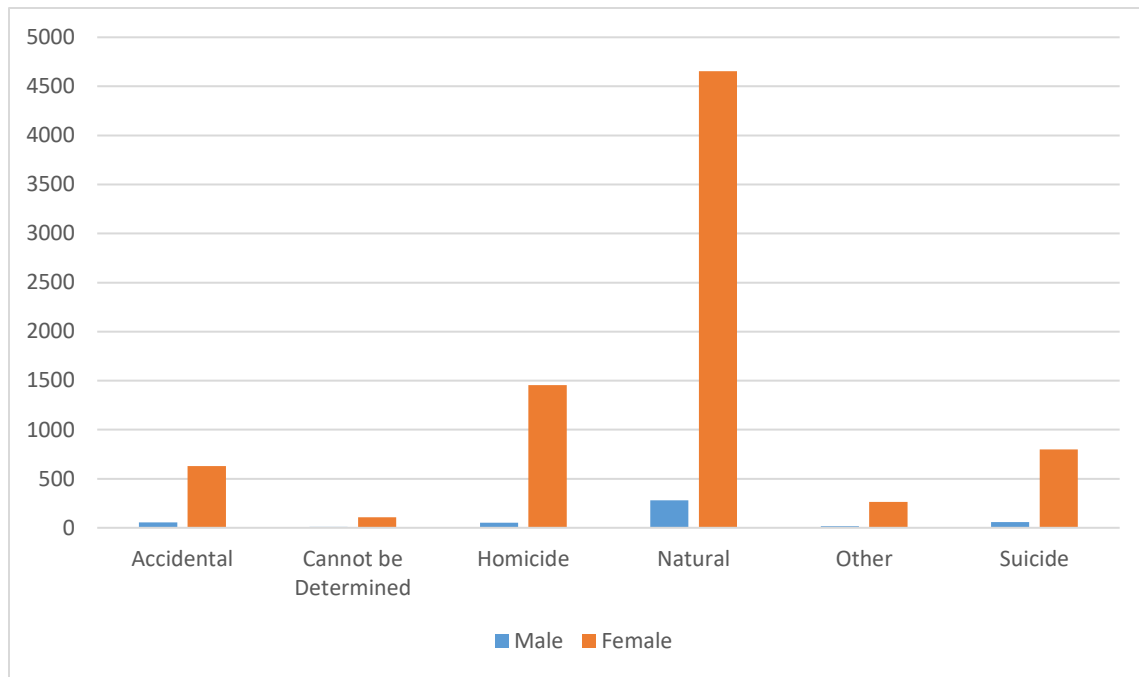


**Race – Custody Status Chart**

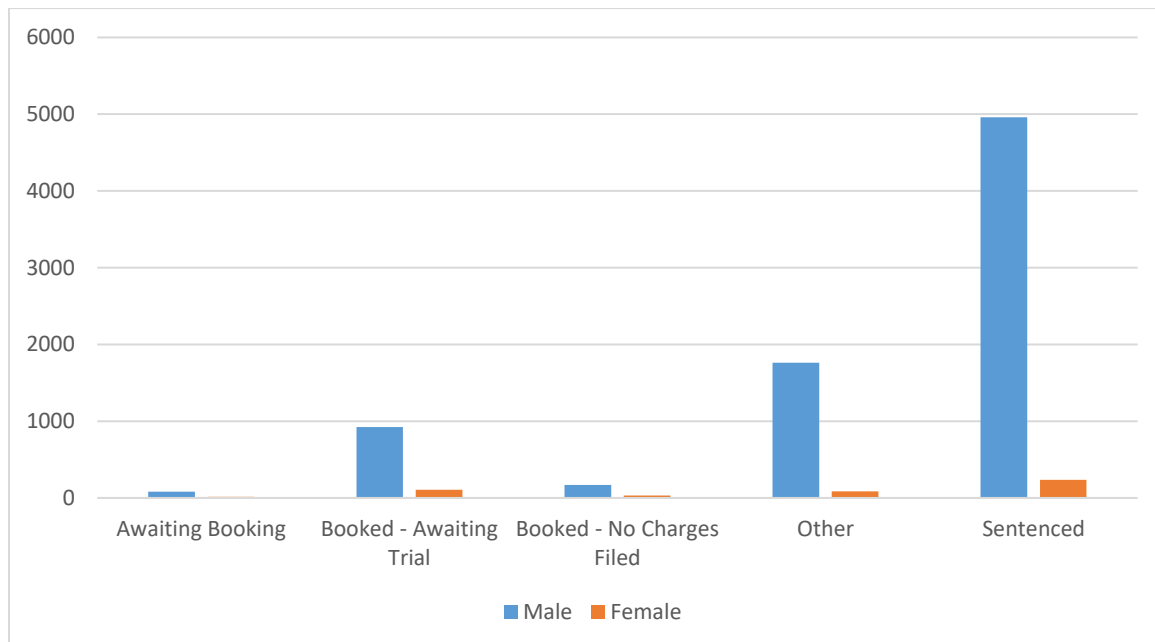


Independent Variable - Gender	Dependent Variable – Manner of Death	Dependent Variable – Custody Status
Gender - Female	Accidental: 55 Cannot be Determined: 9 Homicide: 52 Natural: 281 Other: 16 Suicide: 58	Awaiting Booking: 15 Booked - Awaiting Trial: 106 Booked - No Charges Filed: 32 Other: 84 Sentenced: 234
Gender - Male	Accidental: 628 Cannot be Determined: 106 Homicide: 1453 Natural: 4654 Other: 263 Suicide: 798	Awaiting Booking: 82 Booked - Awaiting Trial: 925 Booked - No Charges Filed: 171 Other: 1763 Sentenced: 4961

**Gender – Manner of Death Chart**

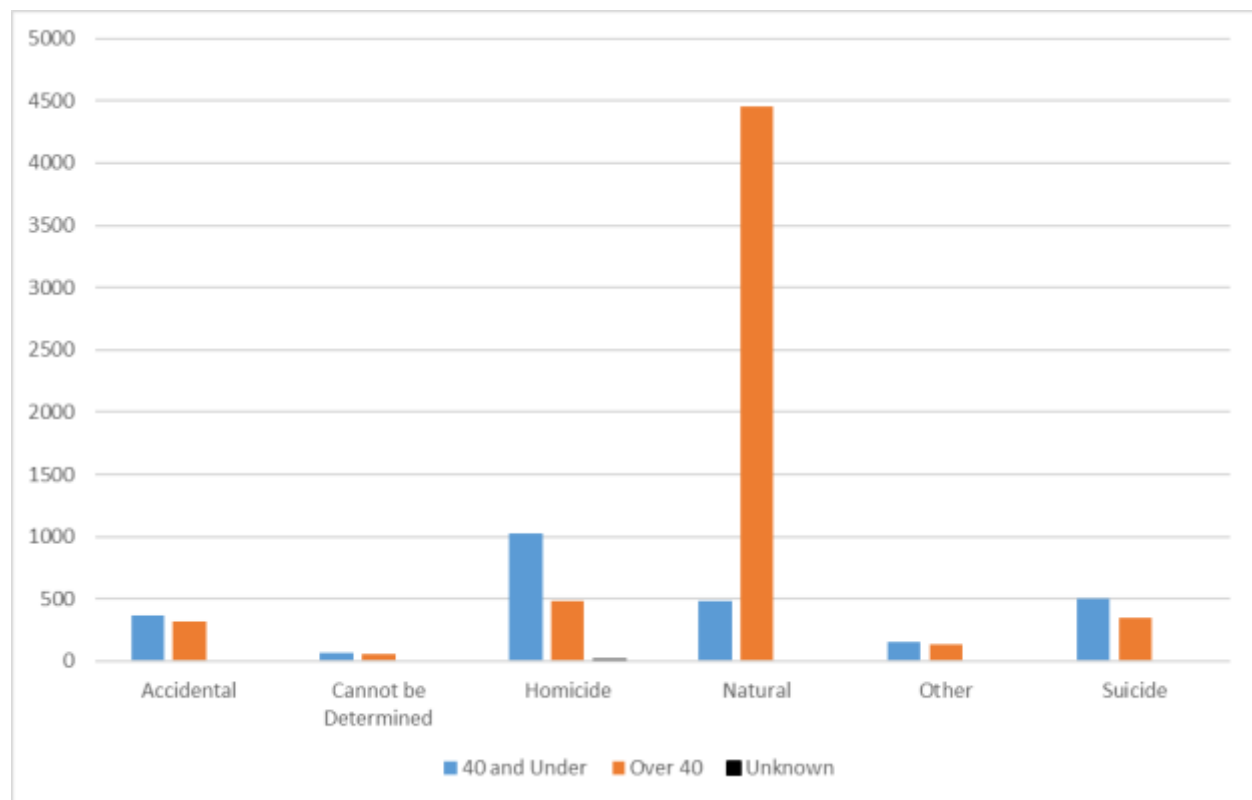


**Gender – Custody Status Chart**

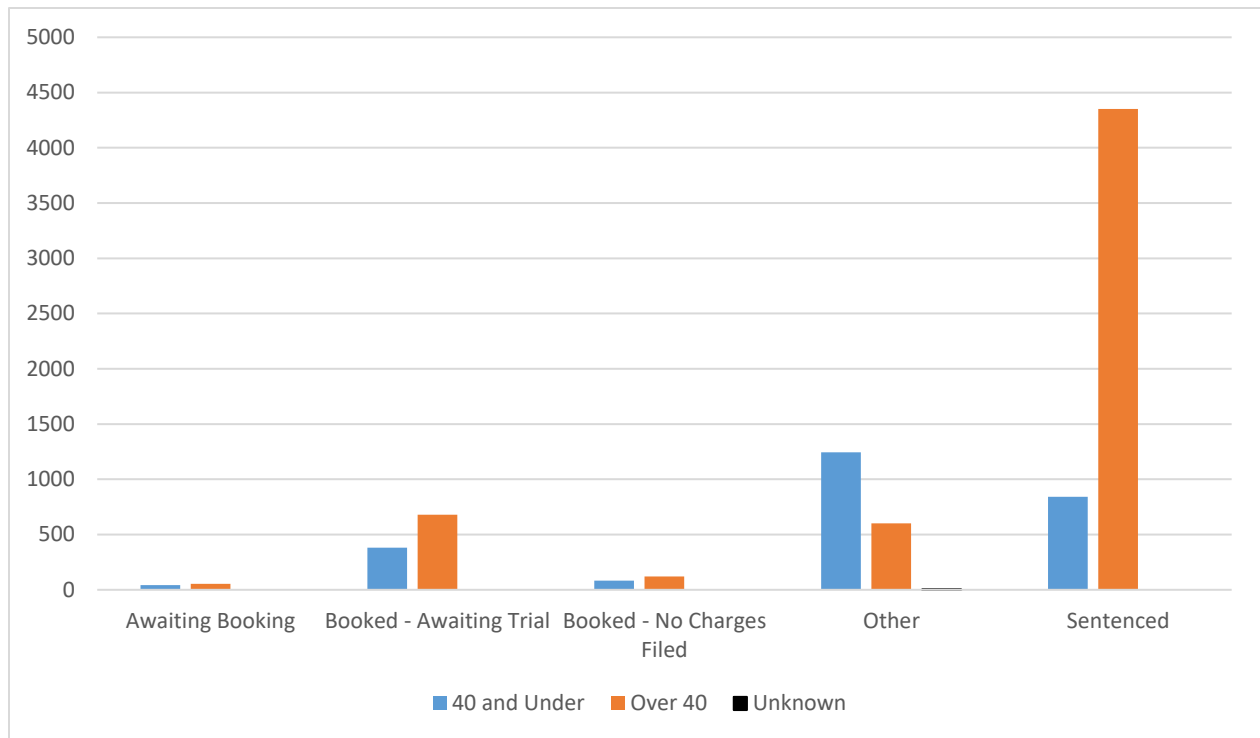


Independent Variable - Age	Dependent Variable – Manner of Death	Dependent Variable – Custody Status
Age – 40 and Under	Accidental: 365 Cannot be Determined: 61 Homicide: 1026 Natural: 485 Other: 149 Suicide: 506	Awaiting Booking: 42 Booked - Awaiting Trial: 381 Booked - No Charges Filed: 83 Other: 1244 Sentenced: 842
Age – Over 40	Accidental: 318 Cannot be Determined: 54 Homicide: 478 Natural: 4450 Other: 130 Suicide: 350	Awaiting Booking: 55 Booked - Awaiting Trial: 680 Booked - No Charges Filed: 120 Other: 602 Sentenced: 4353
Age - Unknown	Homicide: 1	Other: 1

**Age – Manner of Death Chart**

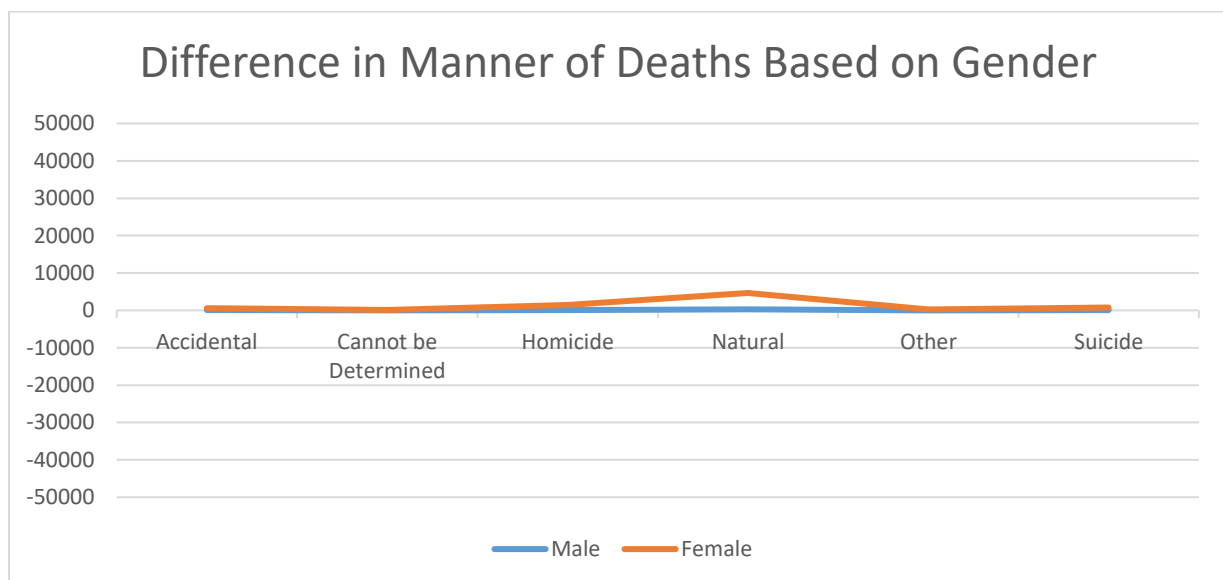


### Age – Custody Status Chart

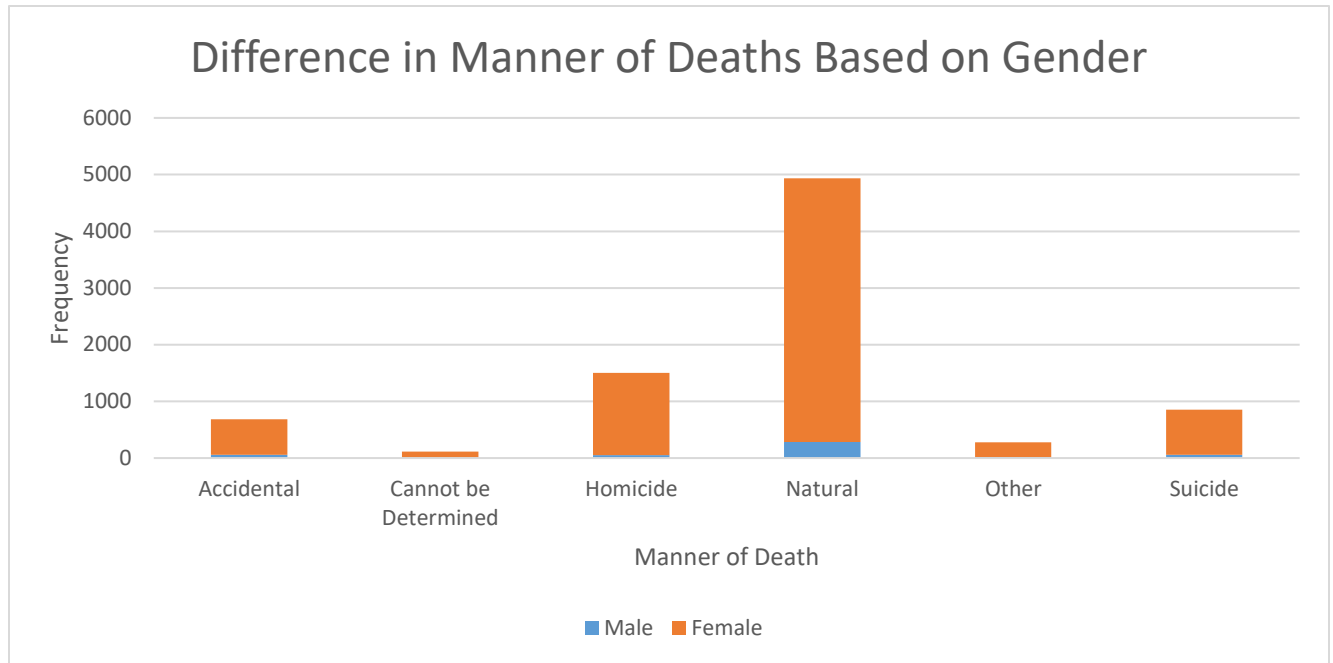


### Step 4 - Show how to manipulate with data:

#### Fair Hypothesis



## Bias Hypothesis



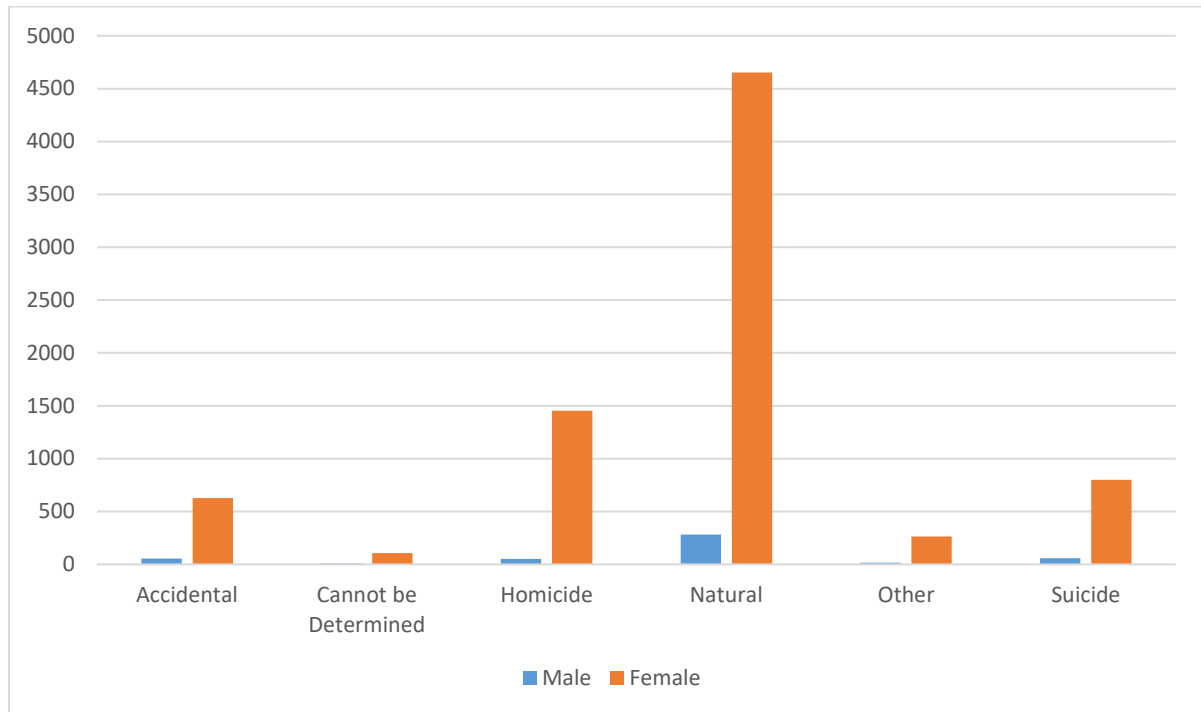
### Step 5 – *Original vs. Reduced Data – Mean, Median, and Mode:*

Protected Class Variable (Gender)	Mean	Median	Mode
Original Data Set	0.05625 (NO)	0 (NO)	0 (NO)
Reduced Data Set	0.05541 (YES)	0 (NO)	0 (NO)
Difference	Difference	No Difference	No Difference

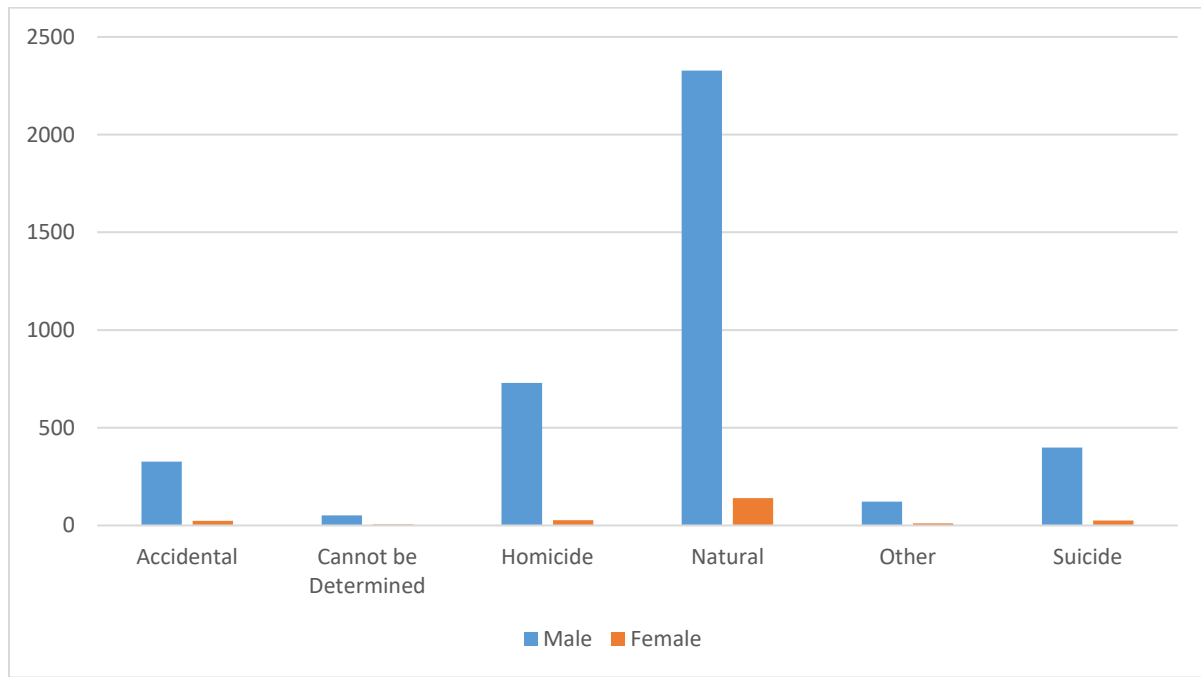


## Step 6 – Original vs. Reduced Data - Graph Comparisons:

Original Graph (Gender – Manner of Death)



Reduced Graph (Gender – Manner of Death)



**Explanation:**

The main difference between the reduced graph and the original is that the statistics for the 'Male' and 'Female' categories seem to be inverted. This may be due to the random sampling method only having two options to work off of as opposed to five or six, limiting randomness.

By using the random sampling method, we see that the 'Female' members would now benefit, and the 'Male' members would suffer. Since we've only worked off two options for the independent variable (gender), there wouldn't be a case where all members of this protected class will benefit from random sampling.