

Suicides Involving Veterans: *A Be Connected Arizona* **Special Report**

Arizona Violent Death Reporting System

January 1, 2015 – December 31, 2018

July, 2020

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By David E. Choate

Center for Violence Prevention and Community Safety

A special report prepared by the Center for Violence Prevention and Community Safety, on behalf of Be Connected Arizona, July 2020.

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Suicides Involving Veterans: *A Be Connected Arizona* Special Report

Arizona Violent Death Reporting System

January 1, 2015 – December 31, 2018

The Arizona Violent Death Reporting System (AZ-VDRS) collects violent death data from multiple sources: death certificates issued by the Arizona Department of Health Services (ADHS), police reports obtained from investigating agencies, and autopsy reports from medical examiner offices. The purpose of this project is to assist stakeholders with strategic planning and prevention efforts aimed towards reducing the number of violent deaths that occur each year in Arizona. The data used for this report – *Suicides Involving Veterans* – were drawn from the compilation and analysis of three years of AZ-VDRS data, from January 1, 2015 through December 31, 2018.

AZ-VDRS recorded a total of 7,599 violent deaths for this period. From these, we excluded 1,447 (19.0%) homicides and 916 (12.1%) violent deaths of undetermined, unintentional, or other manners, leaving 5,236 (68.9%) suicides for analysis. We further excluded cases for individual analyses, based on available data limitations (e.g. missing injury or residence address information, age, veteran status, circumstances of the violent incident, etc.). There will also be some limitations to reporting a “low N” cell count. For example, if there are fewer than six decedents for a given analysis category (e.g. female veterans per residential zip code), we present the results as “<5”. Instances of actual “zero” outcomes are reported as “0”. This reporting practice is in keeping with our obligations to the Centers for Disease Control and Prevention (CDC), the AZ-VDRS sponsor.

We determined veteran status using the indicator for military veteran on the official death certificate; we did not seek external validation, and thus, our data may overcount non-veterans as veterans. Use of this definition is consistent with NVDRS standards and with prior research.ⁱ Note that the term *veteran* may be defined differently elsewhere; for example, individuals who are ineligible for benefits based on discharge status may be excluded in other contexts. AZ-VDRS data analyses and rate calculations also may differ from those of other sources such as the ADHS when our respective analytic processes differ; for example, AZ-VDRS counts *occurrent* deaths (those occurring within the State, regardless of legal residency) rather than *resident* deaths (those of Arizona residents, regardless of location where death occurs). AZ-VDRS analyses include all decedents for whom we have sufficient data from the sources noted above, including but not limited to official death certificates. As a result, AZ-VDRS and ADHS reports overlap; at the same time, these organizations can each offer unique insights reflecting their respective analytic strategies. For this report, there are no known systematic errors in the AZ-VDRS veteran status counts.

For population estimates, we relied on the American Community Survey (US Census) 5-year estimates for 2015, 2016, 2017, and 2018 to compute crude rates where rates are presented. Note that in all the exhibits below, data and analyses represented are for the State of Arizona, 2015–2018, unless otherwise indicated.

Violent deaths

AZ-VDRS routinely examines suicides involving veterans, using a four-category standard unit of analysis: 1) non-veteran males; 2) non-veteran females; 3) veteran males; and 4) veteran females. The AZ-VDRS collects data on violent deaths that occur within Arizona, broadly defined as suicides and homicides, as well as undetermined deaths, unintentional firearm deaths, and legal interventions. Exhibit 1 below shows the distribution of the manners of death by veteran/sex category. It should be noted that where a cell's value equals five or less, the entry reads "<5" to protect anonymity, unless the cell is actually "0".

Exhibit 1: Manner of Death by Sex and Veteran Status, 2015-2018 (N=7599)

| | Veteran sex | | | | Total |
|--|------------------|--------------------|--------------|----------------|-------|
| | Non-Veteran Male | Non-Veteran Female | Veteran Male | Veteran Female | |
| | n | n | n | n | n |
| Suicide | 3058 | 1131 | 1008 | 39 | 5236 |
| Homicide | 1038 | 314 | 88 | 7 | 1447 |
| Unintentional Firearm - Self-Inflicted | 19 | <5 | 6 | 0 | >25 |
| Unintentional Firearm - Inflicted by other | 16 | 10 | <5 | 0 | >26 |
| Unintentional Firearm - Unknown inflictor | <5 | <5 | 0 | 0 | >1 |
| Legal Intervention | 167 | 14 | 26 | 0 | 207 |
| Undetermined Intent | 319 | 266 | 61 | <5 | >646 |
| Other unintentional death | <5 | 0 | 0 | 0 | >1 |
| Unintentional poisoning | <5 | 0 | 0 | 0 | >1 |
| Total | 4621 | 1738 | >1189 | >46 | 7599 |

Statewide suicide rates

Population estimates were calculated using U.S. Census data derived from its American Community Survey (ACS). Using estimates generated with their 5-year estimates provided in ACS Table S2101. Rates are calculated for sex, age group, race/ethnicity, and county of residence. Rates are presented by reporting the number of suicide victims for a given category, per 100,000 population. The next four exhibits compare veterans and non-veterans, to provide a broad context of how the two groups compare on key demographics.

Exhibit 2 shows the suicide rate per 100,000 population by sex and veteran status of the victim. Veterans were at significantly greater risk than their non-veteran counterparts, by more than double the rates among males (73.8 vs. 35.2), and about three times more among female victims (31.4 vs. 10.6).

**Exhibit 2: Suicide Rates per 100,000 Population
by Sex* and Veteran Status, 2015-2018 (N=5,047)**

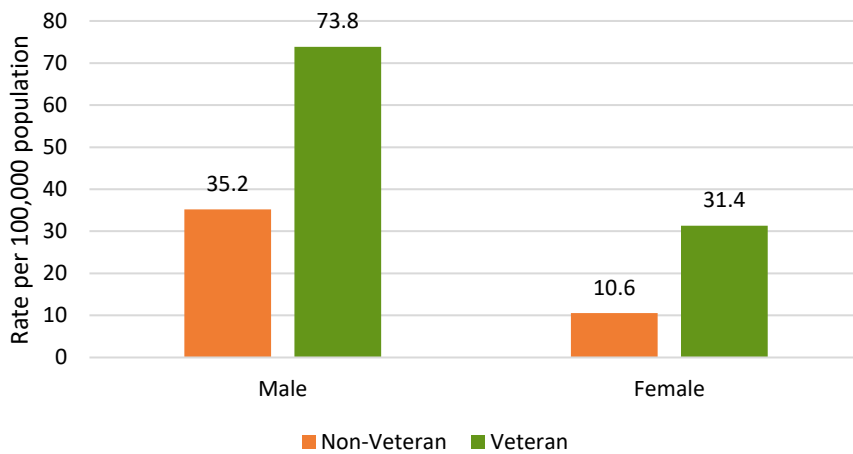


Exhibit 3 compares the race/ethnicity of suicide victims by veteran status. For White, Black, Latinx, and Other suicide victims, veterans were significantly at greater risk than non-veterans. For Native American victims, the rates were very similar, but were slightly higher for Native American non-veterans.

**Exhibit 3: Suicide Rates per 100,000 population by
Race/Ethnicity* and Veteran Status, 2015-2018
(N=4,989)**

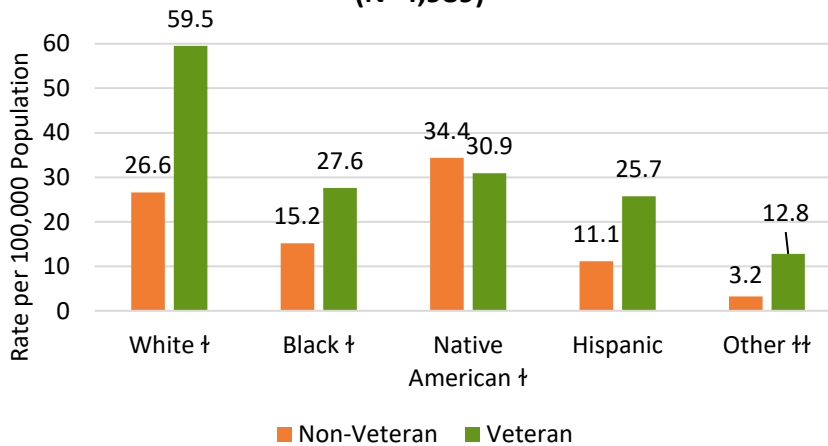


Exhibit 4 compares veteran and non-veteran suicide victims by adult age group. There are significant differences between veteran and non-veterans. While considering that overall, veterans have higher suicide rates than non-veterans, the notable differences in the shape of the respective distribution presents important information. Older veterans are at much greater risk than non-veterans, as can be seen in the chart, as the rate lines diverge as age increases. Conversely, young veterans (age 18-34) are at substantially higher risk than all other ages, regardless of veteran status. This distribution suggests that while veterans are at greater risk overall, there are vulnerabilities for younger (18-34) and older (64 and older) veterans that exaggerate their suicide risk.

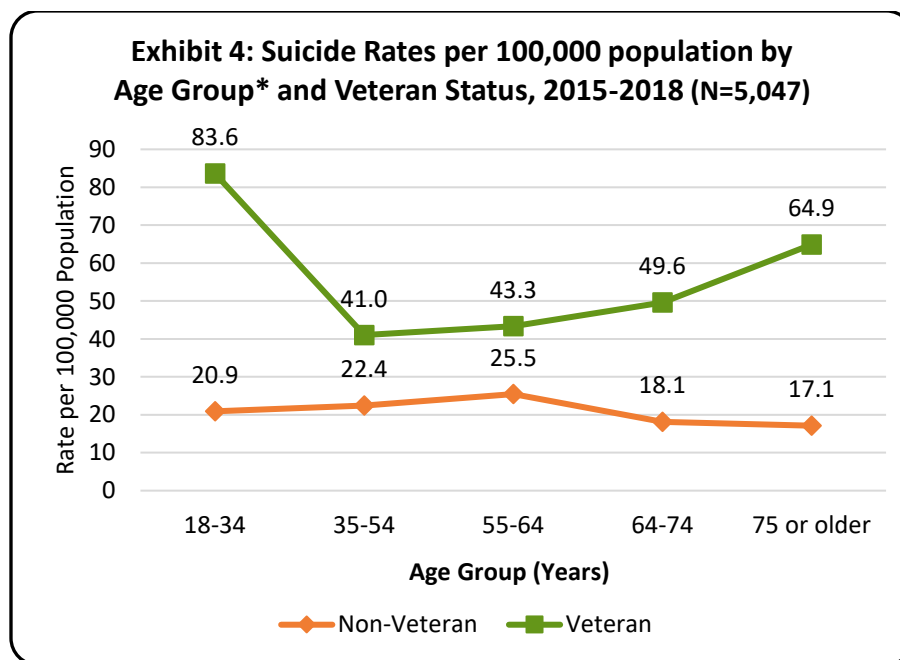
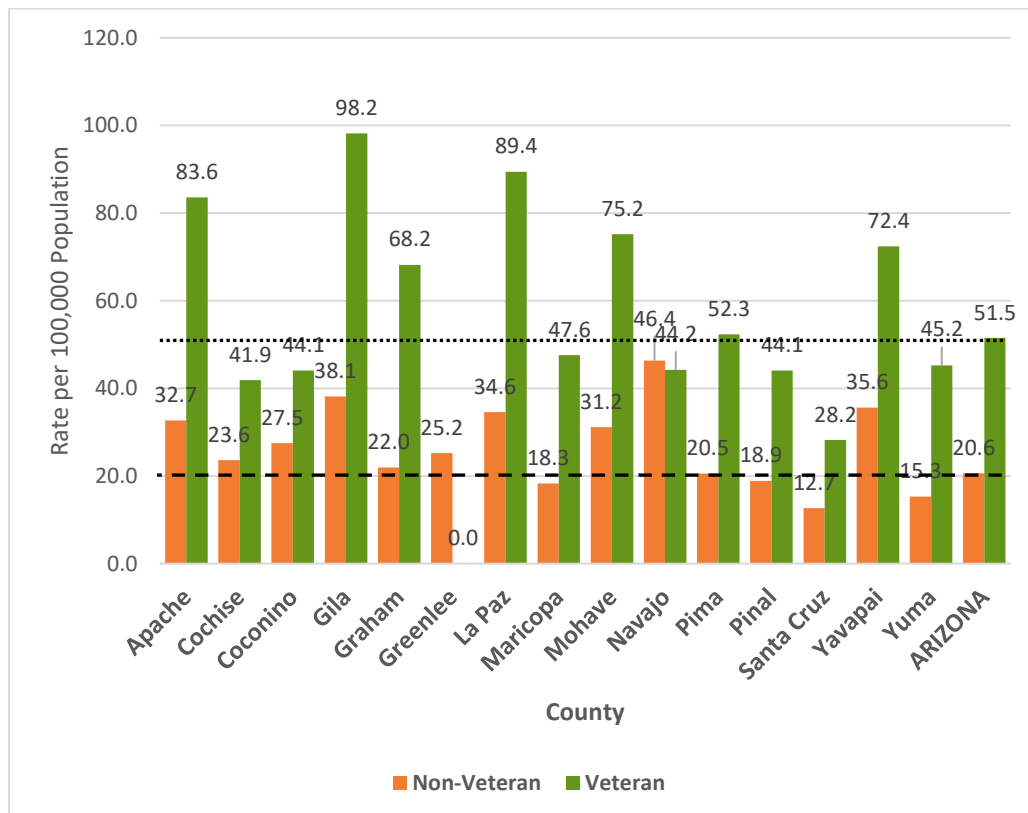


Exhibit 5 shows the suicide rate per 100,000 population by county of residence and veteran status. In all but two counties, Greenlee and Navajo, veterans had higher suicide rates than non-veterans. In Greenlee County, there were no veteran suicides reported in the data. In Navajo County, the rate among non-veterans was 46.4 per 100,000, and 44.2 among veterans. The population demographics of Navajo County, as it is largely comprised of Navajo Nation reservation lands, combined with the findings of the race/ethnicity distribution between veterans and non-veterans presented in Exhibit 3 above, potentially explains the distinction in Navajo County.

Exhibit 5 below displays two horizontal lines across the chart. The dotted line marks the veteran suicide rate for Arizona among all known counties of residence (51.5), and the dashed line marks the rate for non-veterans (20.6). These statewide rates are based on those decedents for whom the data had a valid entry for the county of residence.

Six counties had significantly higher than statewide suicide rates among veterans: Apache (83.6); Gila (98.2); La Paz (89.4); Mohave (75.2); and Yavapai (72.4). Each of those counties also had significantly higher suicide rates for non-veterans than the statewide rate. Respectively, Apache (32.7), Gila (38.1), La Paz (34.6), Mohave (31.2), and Yavapai (35.6) counties were each more than 50% higher than Arizona as a whole (20.6).

Exhibit 5: Suicide Rates per 100,000 population by County of Residence* and Veteran Status, 2015-2018 (N=5,047)



Suicides by residence

Exhibit 6 shows the distribution of suicides by the county of the decedent's residence, by veteran/sex category.

Exhibit 6: Residence County by Sex and Veteran Status, 2015-2018 (N=5,236)

| | | Veteran sex | | | | Total |
|------------------|------------------------|------------------|--------------------|--------------|----------------|-------|
| | | Non-Veteran Male | Non-Veteran Female | Veteran Male | Veteran Female | |
| | | n | n | n | n | n |
| Residence County | Apache | 56 | 11 | 10 | 0 | 77 |
| | Cochise | 59 | 20 | 29 | <5 | >108 |
| | Coconino | 92 | 28 | 12 | <5 | >132 |
| | Gila | 50 | 12 | 22 | 0 | 84 |
| | Graham | 23 | <5 | 6 | 0 | >29 |
| | Greenlee | 6 | 0 | 0 | 0 | 6 |
| | La Paz | 14 | 6 | 9 | 0 | 29 |
| | Maricopa | 1553 | 613 | 466 | 23 | 2655 |
| | Mohave | 143 | 44 | 72 | <5 | >259 |
| | Navajo | 103 | 36 | 13 | 0 | 152 |
| | Pima | 428 | 168 | 173 | 7 | 776 |
| | Pinal | 163 | 55 | 60 | <5 | >278 |
| | Santa Cruz | 13 | <5 | <5 | 0 | >13 |
| | Yavapai | 157 | 69 | 77 | 0 | 303 |
| | Yuma | 66 | 19 | 26 | <5 | >111 |
| | Unknown Arizona County | 10 | <5 | <5 | 0 | >10 |
| | Outside Arizona | 116 | 41 | 30 | <5 | >187 |
| | Missing or Unknown | 6 | 0 | 0 | 0 | 6 |
| Total | | 3058 | 1131 | 1008 | 39 | 5236 |

Exhibit 7 lists the number of decedents by zip code across the entirety of Arizona. The zip codes where the total number of suicides was less than six, are excluded from the table. The table does not show a column for female veterans. This because there were no female veteran victims attributed to any single zip code that had a total of six or more suicides. There were 378 zip codes with at least 1 suicide in Arizona from 2015-2018. After excluding those with less than six total suicides, there were 212 unique zip codes, which are presented in Exhibit 3 below. The exclusion of these low-incidence zip codes left 4,102 suicides for analyses.

**Exhibit 7: Residence Zip Code by Veteran sex, 2015-2018
(N=4102)**

| Residence Zip Code | Veteran sex | | | Total |
|-----------------------|-------------------------|---------------------------|-----------------|-------|
| | Non- Veteran Male | Non- Veteran Female | Veteran Male | |
| 85003 | 7 | 0 | 0 | 7 |
| 85004 | 6 | 0 | 0 | 6 |
| 85006 | 7 | <5 | 0 | >7 |
| 85007 | 5 | 0 | 0 | 5 |
| 85008 | 19 | 7 | 0 | 26 |
| 85009 | 9 | 0 | 0 | 9 |
| 85012 | 8 | 0 | 0 | 8 |
| 85013 | 11 | <5 | 0 | >11 |
| 85014 | 14 | 5 | 5 | 24 |
| 85015 | 11 | 5 | 0 | 16 |
| 85016 | 15 | 8 | 0 | 23 |
| 85017 | 12 | 5 | 6 | 23 |
| 85018 | 17 | 10 | 6 | 33 |
| 85019 | <5 | 0 | 0 | >1 |
| 85020 | 25 | 12 | 5 | 42 |
| 85021 | 15 | 9 | 0 | 24 |
| 85022 | 31 | 10 | 13 | 54 |
| 85023 | 12 | 5 | 0 | 17 |
| 85024 | 8 | <5 | 0 | >8 |
| 85027 | 21 | <5 | 0 | >21 |
| 85028 | 5 | 7 | 0 | 12 |
| 85029 | 20 | 8 | 9 | 37 |
| 85031 | 13 | 0 | 0 | 13 |
| 85032 | 34 | 14 | 11 | 59 |
| 85033 | 20 | 9 | 6 | 35 |
| 85035 | 10 | <5 | 0 | >10 |
| 85037 | 14 | 5 | 0 | 19 |
| 85040 | 10 | 0 | 0 | 10 |

| | | | | |
|-------|----|----|----|-----|
| 85041 | 11 | 5 | 0 | 16 |
| 85042 | 15 | <5 | 0 | >15 |
| 85043 | 13 | <5 | 0 | >13 |
| 85044 | 14 | 7 | 0 | 21 |
| 85045 | 6 | 0 | 0 | 6 |
| 85048 | 0 | 7 | 0 | 7 |
| 85050 | 7 | 6 | 0 | 13 |
| 85051 | 25 | 10 | 0 | 35 |
| 85053 | 19 | 5 | 0 | 24 |
| 85083 | 6 | 5 | 0 | 11 |
| 85085 | 9 | 0 | 0 | 9 |
| 85086 | 15 | 14 | 8 | 37 |
| 85119 | 5 | 7 | 10 | 22 |
| 85120 | 15 | 8 | 8 | 31 |
| 85122 | 27 | 9 | 8 | 44 |
| 85123 | 5 | 0 | 0 | 5 |
| 85128 | 9 | 0 | 0 | 9 |
| 85132 | 18 | 0 | 7 | 25 |
| 85138 | 12 | <5 | <5 | >12 |
| 85139 | 9 | 0 | 0 | 9 |
| 85140 | 13 | <5 | 0 | >13 |
| 85142 | 23 | 0 | 7 | 30 |
| 85143 | 10 | 9 | 7 | 26 |
| 85147 | 5 | 0 | 0 | 5 |
| 85201 | 27 | 9 | 7 | 43 |
| 85202 | 20 | 8 | 0 | 28 |
| 85203 | 15 | 7 | 0 | 22 |
| 85204 | 33 | 13 | 6 | 52 |
| 85205 | 17 | 17 | 8 | 42 |
| 85206 | 17 | 0 | 0 | 17 |
| 85207 | 16 | 8 | 7 | 31 |
| 85208 | 18 | 8 | 6 | 32 |
| 85209 | 15 | 7 | 8 | 30 |
| 85210 | 21 | <5 | 0 | >21 |
| 85212 | 6 | 0 | 0 | 6 |
| 85213 | 8 | 0 | 0 | 8 |
| 85215 | 6 | 6 | 0 | 12 |
| 85224 | 10 | <5 | 6 | >16 |
| 85225 | 23 | 8 | 0 | 31 |
| 85226 | 10 | <5 | 0 | >10 |
| 85233 | 18 | 5 | 0 | 23 |

| | | | | |
|-------|----|----|----|-----|
| 85234 | 12 | 0 | 0 | 12 |
| 85248 | 21 | 0 | 10 | 31 |
| 85249 | 17 | 5 | 0 | 22 |
| 85250 | 10 | 0 | 0 | 10 |
| 85251 | 17 | 6 | 6 | 29 |
| 85253 | 7 | 0 | 0 | 7 |
| 85254 | 24 | 14 | 6 | 44 |
| 85255 | 19 | 10 | 0 | 29 |
| 85256 | 7 | 0 | 0 | 7 |
| 85257 | 19 | 7 | 0 | 26 |
| 85258 | 15 | 9 | 0 | 24 |
| 85259 | 5 | 0 | 0 | 5 |
| 85260 | 5 | <5 | 0 | >5 |
| 85268 | 13 | <5 | 5 | >18 |
| 85281 | 28 | 5 | 0 | 33 |
| 85282 | 17 | 12 | 11 | 40 |
| 85283 | 21 | 7 | 7 | 35 |
| 85286 | 9 | 5 | 6 | 20 |
| 85295 | 17 | 0 | 7 | 24 |
| 85296 | 11 | 0 | 6 | 17 |
| 85297 | 11 | 0 | 0 | 11 |
| 85298 | 7 | 5 | 0 | 12 |
| 85301 | 21 | 10 | 0 | 31 |
| 85302 | 10 | 7 | 0 | 17 |
| 85303 | 7 | 0 | 0 | 7 |
| 85304 | 14 | <5 | 5 | >19 |
| 85305 | 7 | 0 | 0 | 7 |
| 85306 | 6 | <5 | 0 | >6 |
| 85308 | 30 | 10 | 7 | 47 |
| 85323 | 17 | <5 | 0 | >17 |
| 85326 | 25 | 6 | 6 | 37 |
| 85331 | 13 | 6 | 0 | 19 |
| 85335 | 8 | 5 | 0 | 13 |
| 85338 | 17 | 0 | 0 | 17 |
| 85339 | 15 | 7 | 0 | 22 |
| 85340 | 12 | <5 | 5 | >17 |
| 85345 | 13 | 11 | 8 | 32 |
| 85349 | 5 | 0 | 0 | 5 |
| 85351 | 15 | 8 | 10 | 33 |
| 85353 | 11 | 0 | 0 | 11 |
| 85354 | 5 | 0 | 0 | 5 |

| | | | | |
|-------|----|----|----|-----|
| 85355 | 5 | 0 | 0 | 5 |
| 85364 | 31 | 5 | 8 | 44 |
| 85365 | 16 | 9 | 10 | 35 |
| 85367 | 8 | 0 | 6 | 14 |
| 85373 | 0 | 0 | 6 | 6 |
| 85374 | 22 | 7 | 11 | 40 |
| 85375 | 15 | 0 | 16 | 31 |
| 85379 | 14 | 5 | 5 | 24 |
| 85381 | 9 | 8 | <5 | >17 |
| 85382 | 11 | 10 | 7 | 28 |
| 85383 | 10 | 0 | 0 | 10 |
| 85388 | 12 | <5 | 0 | >12 |
| 85390 | 7 | 6 | 0 | 13 |
| 85392 | 5 | <5 | 0 | >5 |
| 85395 | 6 | 0 | 0 | 6 |
| 85501 | 12 | 0 | 0 | 12 |
| 85541 | 21 | 8 | 16 | 45 |
| 85546 | 15 | 0 | 0 | 15 |
| 85550 | 6 | 0 | 0 | 6 |
| 85602 | 5 | 0 | 0 | 5 |
| 85603 | 9 | 0 | 0 | 9 |
| 85614 | 11 | 6 | 11 | 28 |
| 85615 | 5 | 0 | 0 | 5 |
| 85622 | 6 | 0 | 7 | 13 |
| 85629 | 7 | 0 | 0 | 7 |
| 85634 | 9 | 0 | 0 | 9 |
| 85635 | 14 | 5 | 9 | 28 |
| 85641 | 15 | <5 | 6 | >21 |
| 85648 | 7 | 0 | 0 | 7 |
| 85650 | 0 | 0 | 6 | 6 |
| 85653 | 11 | 5 | 0 | 16 |
| 85704 | 20 | 7 | 6 | 33 |
| 85705 | 33 | 7 | 11 | 51 |
| 85706 | 17 | 0 | 0 | 17 |
| 85710 | 19 | 16 | 10 | 45 |
| 85711 | 20 | 5 | 0 | 25 |
| 85712 | 19 | 11 | 8 | 38 |
| 85713 | 14 | 7 | 0 | 21 |
| 85714 | 6 | 0 | 0 | 6 |
| 85715 | 8 | 6 | 0 | 14 |
| 85716 | 16 | 10 | 0 | 26 |

| | | | | |
|-------|----|----|----|-----|
| 85718 | 5 | 5 | 6 | 16 |
| 85719 | 22 | 6 | 0 | 28 |
| 85730 | 17 | 5 | 11 | 33 |
| 85735 | <5 | 0 | <5 | >5 |
| 85736 | 6 | 0 | 0 | 6 |
| 85737 | 9 | 0 | 0 | 9 |
| 85739 | 11 | 0 | 9 | 20 |
| 85741 | 13 | 0 | 0 | 13 |
| 85742 | 11 | 0 | 0 | 11 |
| 85743 | 12 | 5 | 6 | 23 |
| 85745 | 9 | 8 | 0 | 17 |
| 85746 | 14 | 5 | 0 | 19 |
| 85747 | 9 | 0 | 0 | 9 |
| 85748 | 7 | 0 | 7 | 14 |
| 85750 | 8 | 0 | 6 | 14 |
| 85755 | 5 | 0 | 6 | 11 |
| 85756 | 18 | 6 | 0 | 24 |
| 85901 | 18 | 7 | 0 | 25 |
| 85911 | 8 | 0 | 0 | 8 |
| 85929 | 8 | <5 | 0 | >8 |
| 85935 | 6 | 0 | 0 | 6 |
| 85937 | <5 | <5 | 0 | >5 |
| 85941 | 10 | 9 | 0 | 19 |
| 86001 | 19 | 0 | 0 | 19 |
| 86004 | 19 | 12 | 0 | 31 |
| 86005 | 7 | 0 | 0 | 7 |
| 86033 | 8 | 0 | 0 | 8 |
| 86040 | 8 | 0 | 0 | 8 |
| 86045 | 11 | <5 | 0 | >11 |
| 86046 | 6 | 0 | 0 | 6 |
| 86047 | 16 | <5 | 0 | >16 |
| 86301 | 12 | 7 | 11 | 30 |
| 86303 | 20 | 9 | 7 | 36 |
| 86305 | 9 | 5 | 7 | 21 |
| 86314 | 19 | 9 | 11 | 39 |
| 86315 | 7 | 0 | 0 | 7 |
| 86322 | 9 | 7 | 0 | 16 |
| 86323 | 7 | 6 | 0 | 13 |
| 86324 | 6 | 0 | 0 | 6 |
| 86325 | 9 | 0 | 0 | 9 |
| 86326 | 17 | 5 | 6 | 28 |

| | | | | |
|-------|------|-----|-----|------|
| 86327 | 8 | 0 | 0 | 8 |
| 86333 | 5 | 0 | 6 | 11 |
| 86336 | 6 | 0 | 0 | 6 |
| 86351 | 6 | 5 | 0 | 11 |
| 86401 | 16 | <5 | 16 | >32 |
| 86403 | 14 | <5 | 6 | >20 |
| 86404 | 14 | 9 | 0 | 23 |
| 86406 | 12 | 6 | 6 | 24 |
| 86409 | 23 | 6 | 11 | 40 |
| 86413 | 6 | 0 | 0 | 6 |
| 86426 | 12 | 0 | 0 | 12 |
| 86429 | 7 | 0 | 0 | 7 |
| 86440 | 5 | <5 | 0 | >5 |
| 86442 | 20 | <5 | 8 | >28 |
| 86503 | 9 | 0 | 0 | 9 |
| 86505 | 6 | 0 | 0 | 6 |
| 86510 | 8 | 0 | 0 | 8 |
| 86520 | 5 | 0 | 0 | 5 |
| 88888 | 7 | 0 | 0 | 7 |
| 99999 | 25 | 7 | <5 | >32 |
| Total | 2669 | 844 | 589 | 4102 |

Exhibit 8 shows the percentage of veterans of the total suicides for a given zip code that were veterans. Population estimates for Arizona place veterans at about 12% of the overall Arizona population. Given this measure as a guidance, any zip code with a percentage value greater than 12% has an elevated risk.

| Exhibit 8: Percentage of Veteran Suicides of Total Suicides by Zip Code, 2015-2018 | | | | | |
|--|------------------|--------------------|------------------|--------------------|------------------|
| Residence ZIP Code | %Veteran Suicide | Residence ZIP Code | %Veteran Suicide | Residence ZIP Code | %Veteran Suicide |
| 85001 | 0.0 | 85303 | 16.7 | 85724 | 100.0 |
| 85003 | 11.1 | 85304 | 21.7 | 85730 | 31.4 |
| 85004 | 0.0 | 85305 | 0.0 | 85732 | 0.0 |
| 85005 | 0.0 | 85306 | 33.3 | 85734 | 0.0 |
| 85006 | 15.4 | 85307 | 0.0 | 85735 | 33.3 |
| 85007 | 0.0 | 85308 | 14.9 | 85736 | 12.5 |
| 85008 | 13.3 | 85309 | 100.0 | 85737 | 27.8 |
| 85009 | 16.7 | 85310 | 11.1 | 85739 | 42.9 |
| 85012 | 11.1 | 85312 | 0.0 | 85740 | 0.0 |
| 85013 | 25.0 | 85320 | 0.0 | 85741 | 26.3 |
| 85014 | 20.8 | 85321 | 40.0 | 85742 | 16.7 |

| | | | | | |
|-------|-------|-------|------|-------|-------|
| 85015 | 19.0 | 85322 | 0.0 | 85743 | 29.2 |
| 85016 | 14.8 | 85323 | 9.1 | 85745 | 10.0 |
| 85017 | 29.2 | 85324 | 28.6 | 85746 | 13.6 |
| 85018 | 18.2 | 85325 | 40.0 | 85747 | 27.8 |
| 85019 | 16.7 | 85326 | 17.9 | 85748 | 38.9 |
| 85020 | 13.6 | 85328 | 0.0 | 85749 | 46.2 |
| 85021 | 7.7 | 85331 | 13.6 | 85750 | 31.6 |
| 85022 | 24.1 | 85332 | 20.0 | 85755 | 50.0 |
| 85023 | 10.5 | 85334 | 0.0 | 85756 | 17.2 |
| 85024 | 16.7 | 85335 | 13.3 | 85757 | 0.0 |
| 85027 | 4.0 | 85337 | 0.0 | 85901 | 7.1 |
| 85028 | 25.0 | 85338 | 13.0 | 85911 | 0.0 |
| 85029 | 24.3 | 85339 | 15.4 | 85912 | 50.0 |
| 85031 | 6.7 | 85340 | 23.8 | 85920 | 0.0 |
| 85032 | 18.6 | 85342 | 0.0 | 85924 | 25.0 |
| 85033 | 17.1 | 85343 | 0.0 | 85925 | 0.0 |
| 85034 | 100.0 | 85344 | 30.0 | 85926 | 0.0 |
| 85035 | 12.5 | 85345 | 27.3 | 85928 | 0.0 |
| 85037 | 5.0 | 85346 | 36.4 | 85929 | 7.7 |
| 85038 | 0.0 | 85348 | 0.0 | 85932 | 100.0 |
| 85040 | 9.1 | 85349 | 0.0 | 85933 | 50.0 |
| 85041 | 19.0 | 85350 | 33.3 | 85935 | 0.0 |
| 85042 | 10.0 | 85351 | 29.4 | 85936 | 28.6 |
| 85043 | 0.0 | 85352 | 0.0 | 85937 | 30.0 |
| 85044 | 15.4 | 85353 | 0.0 | 85938 | 0.0 |
| 85045 | 0.0 | 85354 | 0.0 | 85939 | 0.0 |
| 85048 | 28.6 | 85355 | 16.7 | 85940 | 100.0 |
| 85050 | 12.5 | 85356 | 33.3 | 85941 | 0.0 |
| 85051 | 7.7 | 85361 | 50.0 | 86001 | 15.4 |
| 85053 | 16.7 | 85362 | 33.3 | 86004 | 11.1 |
| 85054 | 22.2 | 85363 | 50.0 | 86005 | 0.0 |
| 85063 | 0.0 | 85364 | 18.2 | 86017 | 33.3 |
| 85083 | 8.3 | 85365 | 28.6 | 86018 | 0.0 |
| 85085 | 23.1 | 85367 | 35.0 | 86020 | 0.0 |
| 85086 | 21.1 | 85373 | 46.2 | 86021 | 0.0 |
| 85087 | 20.0 | 85374 | 27.5 | 86022 | 50.0 |
| 85091 | 0.0 | 85375 | 44.4 | 86023 | 0.0 |
| 85103 | 0.0 | 85377 | 40.0 | 86025 | 0.0 |
| 85118 | 33.3 | 85378 | 42.9 | 86029 | 0.0 |
| 85119 | 45.5 | 85379 | 24.0 | 86030 | 0.0 |
| 85120 | 25.8 | 85381 | 19.0 | 86031 | 0.0 |
| 85121 | 0.0 | 85382 | 25.0 | 86033 | 0.0 |
| 85122 | 17.8 | 85383 | 17.6 | 86034 | 0.0 |

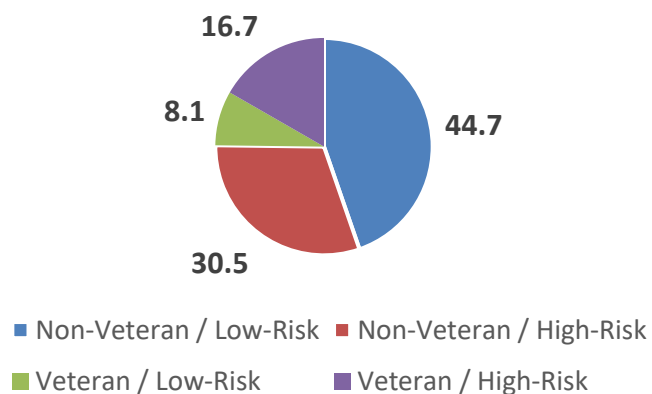
| | | | | | |
|-------|------|-------|-------|-------|-------|
| 85123 | 28.6 | 85387 | 33.3 | 86035 | 0.0 |
| 85128 | 7.7 | 85388 | 11.8 | 86039 | 0.0 |
| 85131 | 0.0 | 85390 | 7.1 | 86040 | 8.3 |
| 85132 | 26.9 | 85392 | 33.3 | 86042 | 0.0 |
| 85133 | 0.0 | 85395 | 33.3 | 86043 | 0.0 |
| 85137 | 50.0 | 85396 | 33.3 | 86044 | 0.0 |
| 85138 | 25.0 | 85413 | 50.0 | 86045 | 0.0 |
| 85139 | 0.0 | 85501 | 7.1 | 86046 | 8.3 |
| 85140 | 5.9 | 85502 | 100.0 | 86047 | 17.4 |
| 85142 | 21.2 | 85530 | 0.0 | 86053 | 0.0 |
| 85143 | 25.9 | 85532 | 50.0 | 86054 | 0.0 |
| 85145 | 0.0 | 85533 | 0.0 | 86237 | 100.0 |
| 85147 | 0.0 | 85534 | 0.0 | 86301 | 35.5 |
| 85172 | 0.0 | 85539 | 0.0 | 86303 | 19.4 |
| 85173 | 0.0 | 85541 | 34.0 | 86305 | 33.3 |
| 85175 | 0.0 | 85542 | 0.0 | 86314 | 26.8 |
| 85193 | 0.0 | 85543 | 100.0 | 86315 | 9.1 |
| 85194 | 0.0 | 85544 | 50.0 | 86320 | 33.3 |
| 85201 | 15.9 | 85545 | 100.0 | 86322 | 15.8 |
| 85202 | 17.1 | 85546 | 20.0 | 86323 | 23.5 |
| 85203 | 0.0 | 85550 | 0.0 | 86324 | 14.3 |
| 85204 | 11.5 | 85552 | 25.0 | 86325 | 18.2 |
| 85205 | 20.5 | 85553 | 0.0 | 86326 | 20.7 |
| 85206 | 20.8 | 85554 | 100.0 | 86327 | 25.0 |
| 85207 | 22.6 | 85601 | 0.0 | 86332 | 33.3 |
| 85208 | 18.8 | 85602 | 12.5 | 86333 | 42.9 |
| 85209 | 26.7 | 85603 | 0.0 | 86334 | 40.0 |
| 85210 | 4.0 | 85606 | 0.0 | 86335 | 33.3 |
| 85212 | 20.0 | 85607 | 0.0 | 86336 | 30.8 |
| 85213 | 25.0 | 85609 | 0.0 | 86337 | 0.0 |
| 85215 | 25.0 | 85610 | 0.0 | 86338 | 0.0 |
| 85216 | 0.0 | 85613 | 100.0 | 86351 | 8.3 |
| 85219 | 0.0 | 85614 | 39.3 | 86367 | 0.0 |
| 85224 | 33.3 | 85615 | 22.2 | 86401 | 41.0 |
| 85225 | 8.6 | 85616 | 40.0 | 86403 | 29.2 |
| 85226 | 6.7 | 85617 | 0.0 | 86404 | 11.5 |
| 85228 | 0.0 | 85620 | 100.0 | 86406 | 25.0 |
| 85231 | 0.0 | 85621 | 0.0 | 86409 | 26.8 |
| 85233 | 20.0 | 85622 | 53.8 | 86413 | 33.3 |
| 85234 | 6.7 | 85623 | 0.0 | 86415 | 0.0 |
| 85238 | 0.0 | 85625 | 33.3 | 86426 | 16.7 |
| 85242 | 0.0 | 85627 | 0.0 | 86429 | 33.3 |
| 85248 | 27.8 | 85629 | 28.6 | 86431 | 100.0 |

| | | | | | |
|-------|-------|-------|-------|---------------|-------|
| 85249 | 8.3 | 85630 | 0.0 | 86432 | 0.0 |
| 85250 | 7.1 | 85631 | 100.0 | 86434 | 0.0 |
| 85251 | 23.3 | 85632 | 0.0 | 86435 | 0.0 |
| 85253 | 10.0 | 85634 | 0.0 | 86436 | 50.0 |
| 85254 | 15.6 | 85635 | 33.3 | 86438 | 0.0 |
| 85255 | 6.3 | 85637 | 100.0 | 86440 | 21.4 |
| 85256 | 11.1 | 85638 | 40.0 | 86441 | 50.0 |
| 85257 | 16.1 | 85641 | 27.3 | 86442 | 26.5 |
| 85258 | 10.7 | 85643 | 57.1 | 86444 | 0.0 |
| 85259 | 0.0 | 85645 | 0.0 | 86502 | 0.0 |
| 85260 | 35.7 | 85646 | 0.0 | 86503 | 0.0 |
| 85262 | 33.3 | 85648 | 9.1 | 86504 | 0.0 |
| 85263 | 100.0 | 85650 | 54.5 | 86505 | 22.2 |
| 85264 | 100.0 | 85653 | 5.6 | 86507 | 0.0 |
| 85266 | 50.0 | 85658 | 22.2 | 86510 | 0.0 |
| 85268 | 22.7 | 85701 | 0.0 | 86511 | 0.0 |
| 85269 | 0.0 | 85702 | 0.0 | 86512 | 0.0 |
| 85281 | 10.8 | 85704 | 17.1 | 86514 | 0.0 |
| 85282 | 27.5 | 85705 | 22.6 | 86515 | 20.0 |
| 85283 | 21.6 | 85706 | 4.5 | 86520 | 0.0 |
| 85284 | 0.0 | 85707 | 100.0 | 86538 | 33.3 |
| 85286 | 28.6 | 85710 | 22.9 | 86540 | 0.0 |
| 85294 | 100.0 | 85711 | 11.8 | 86544 | 100.0 |
| 85295 | 25.0 | 85712 | 23.1 | 86547 | 0.0 |
| 85296 | 30.0 | 85713 | 15.4 | 86556 | 0.0 |
| 85297 | 6.7 | 85714 | 0.0 | 99977 | |
| 85298 | 29.4 | 85715 | 17.6 | Unknown | 12.5 |
| 85298 | 29.4 | 85716 | 9.7 | Arizona Zip | |
| 85301 | 8.3 | 85718 | 41.2 | 99988 Outside | |
| 85302 | 15.0 | 85719 | 12.1 | Arizona | 17.4 |
| | | | | 99999 | |
| | | | | Unknown or | 5.0 |
| | | | | Missing | |

Suicides involving male victims

The next set of analyses depend solely on comparing male suicide victims. The analyses use the residence zip code proportions reported above to identify zip codes of comparatively “low” and “high” risk level. These two levels are defined for our purposes as a zip code with a proportion of veteran suicides that approximate the overall population distribution (i.e. “low risk”), and a those zip codes with a proportion of suicides that are more than one standard deviation of the mean above the overall proportion (i.e. “high-risk”; veteran proportion $\geq 18.2\%$). As described above, there were too few female veteran suicides to permit a zip-code level of analysis, and the findings in the following sections are for males only. We used four analysis categories defined as: 1) non-veteran male living in a low-risk zip code; 2) non-veteran male living in a high-risk zip code; 3) veteran male living in a low-risk zip code; and 4) veteran male living in a high-risk zip code. Exhibit 9 shows the distribution of suicides based on these categorizations.

Exhibit 9: Percentage of Suicides by Veteran Status and Zip Code Risk Level, 2015-2018
(N=4,066)



Significant differences were observed in the veteran/zip-code status of decedents when comparing race/ethnicity. There were differences among Native American and Hispanic/Latinx victims, where a higher proportion of non-veterans in both low- and high-risk zip codes were present. See Exhibit 10 below.

Exhibit 10: Race and Ethnicity by Veteran/Zip-Code Status*, 2015-2018 (N=4019)

| | Veteran and Zip Status | | | | | | | | Total | |
|--------------------------------------|----------------------------|-------|-----------------------------|-------|------------------------|-------|-------------------------|-------|-------|-------|
| | Non-Veteran / Low Risk Zip | | Non-Veteran / High Risk Zip | | Veteran / Low Risk Zip | | Veteran / High Risk Zip | | | |
| | n | % | n | % | n | % | n | % | n | % |
| White, Non-Hispanic | 1136 | 63.5 | 994 | 80.9 | 284 | 86.1 | 620 | 92.3 | 3034 | 75.5 |
| Black | 63 | 3.5 | 33 | 2.7 | 10 | 3.0 | 14 | 2.1 | 120 | 3.0 |
| Native American | 206 | 11.5 | 22 | 1.8 | 6 | 1.8 | <5 | 0.6 | >234 | 5.9 |
| Hispanic, Any Race | 350 | 19.6 | 164 | 13.3 | 24 | 7.3 | 29 | 4.3 | 567 | 14.1 |
| Asian or Pacific Islander, and Other | 31 | 1.7 | 16 | 1.3 | 6 | 1.8 | 5 | 0.7 | 60 | 1.5 |
| Total | 1788 | 100.0 | 1229 | 100.0 | 330 | 100.0 | 672 | 100.0 | 4019 | 100.0 |

Exhibit 11 shows the suicides by age group. The differences were both significant and substantial, with both veteran groups (low and high-risk residence zip codes) were much older than non-veteran suicide victims. Notably, more than half (60.5%) of veteran/high-risk decedents were age 65 or older, compared to 50.3% of veteran/low-risk victims, and just 16.9% and 10.2% of non-veterans from high- and low-risk zip codes, respectively.

Exhibit 11: Age Group by Veteran/Zip-Code Status*, 2015-2018 (N=3924)

| | Veteran and Zip Status | | | | | | | | Total | |
|-------------|----------------------------|-------|-----------------------------|-------|------------------------|-------|-------------------------|-------|-------|-------|
| | Non-Veteran / Low Risk Zip | | Non-Veteran / High Risk Zip | | Veteran / Low Risk Zip | | Veteran / High Risk Zip | | | |
| | n | % | n | % | n | % | n | % | n | % |
| 8-34 years | 677 | 37.9 | 322 | 26.2 | 57 | 17.3 | 68 | 10.1 | 1124 | 28.6 |
| 35-54 years | 590 | 33.0 | 436 | 35.5 | 64 | 19.4 | 100 | 14.9 | 1190 | 30.3 |
| 55-64 years | 287 | 16.1 | 214 | 17.4 | 44 | 13.3 | 102 | 15.2 | 647 | 16.5 |
| 65-74 years | 113 | 6.3 | 112 | 9.1 | 82 | 24.8 | 175 | 26.0 | 482 | 12.3 |
| 75 or older | 69 | 3.9 | 96 | 7.8 | 84 | 25.5 | 232 | 34.5 | 481 | 12.3 |
| Total | 1788 | 100.0 | 1229 | 100.0 | 330 | 100.0 | 672 | 100.0 | 3924 | 100.0 |

Exhibit 12 shows the results of selected demographic characteristics by their veteran/zip-code status. For completed education, marital status, and birthplace, there were significant differences across the groups in all three areas. For example, a completed college degree was most common among veterans from high-risk zip codes, with 36.2% having an associate degree or higher. This compared to 26.8% of veterans from low-risk zip codes, and 22.9% and 20.5% of non-veterans from high- and low-risk zip codes, respectively.

For marital status, there was a substantial difference between veterans and non-veterans and whether that had never been married. Veterans from low- and high-risk zip codes had never been married just 10.2% and 12.1% of the time, compared to 51.4% and 41.4% of their non-veteran neighbors. Veterans from all areas were less likely than non-veterans to have been born in Arizona, or a foreign country.

Exhibit 12: Completed Education, Marital Status, Veteran Status and Birthplace among Suicide Victims Aged 18 or Older by Veteran/Zip-Code Status, 2015-2018 (N=4,066)

| | Non-Veteran / Low Risk Zip | | Non-Veteran / High Risk Zip | | Veteran / Low Risk Zip | | Veteran / High Risk Zip | | Total | |
|--------------------------------|----------------------------|------|-----------------------------|------|------------------------|------|-------------------------|------|-------|------|
| | N | % | N | % | N | % | N | % | N | |
| Completed Education* | | | | | | | | | | |
| <= 8th grade | 89 | 4.9 | 42 | 3.4 | 8 | 2.4 | 5 | 0.7 | 144 | 3.5 |
| 9th - 12th grade | 320 | 17.6 | 186 | 15.0 | 11 | 3.3 | 32 | 4.7 | 549 | 13.5 |
| High school or GED grad | 640 | 35.2 | 453 | 36.5 | 128 | 38.7 | 222 | 32.8 | 1443 | 35.5 |
| Some college credit | 353 | 19.4 | 252 | 20.3 | 87 | 26.3 | 160 | 23.6 | 852 | 21.0 |
| Associate or bachelor's degree | 288 | 15.8 | 214 | 17.3 | 69 | 20.8 | 173 | 25.6 | 744 | 18.3 |
| Advanced Degree | 86 | 4.7 | 69 | 5.6 | 20 | 6.0 | 72 | 10.6 | 247 | 6.1 |
| Unknown | 42 | 2.3 | 24 | 1.9 | 8 | 2.4 | 13 | 1.9 | 87 | 2.1 |
| Marital Status* | | | | | | | | | | |
| Never Married | 934 | 51.4 | 513 | 41.4 | 69 | 10.2 | 82 | 12.1 | 1598 | 39.3 |
| Married | 396 | 21.8 | 332 | 26.8 | 107 | 32.3 | 281 | 41.5 | 1116 | 27.4 |
| Married, but Separated | 87 | 4.8 | 51 | 4.1 | 18 | 5.4 | 20 | 3.0 | 176 | 4.3 |
| Divorced | 327 | 18.0 | 289 | 23.3 | 97 | 29.3 | 194 | 28.7 | 907 | 22.3 |
| Widowed | 51 | 2.8 | 44 | 3.5 | 38 | 11.5 | 94 | 13.9 | 227 | 5.6 |
| Single, unspecified | <5 | 0.2 | <5 | 0.2 | 0 | 0.0 | <5 | 0.1 | >3 | >0.2 |
| Unknown | 19 | 1.0 | 7 | 0.6 | <5 | 0.6 | 5 | 0.7 | >31 | >0.8 |
| Birthplace* | | | | | | | | | | |
| Arizona | 663 | 36.5 | 331 | 26.7 | 56 | 17.2 | 73 | 11.0 | 1123 | 27.7 |
| Other US state or territory | 953 | 52.4 | 795 | 64.1 | 258 | 79.4 | 579 | 86.9 | 2585 | 63.8 |
| Foreign Country | 164 | 9.0 | 95 | 7.7 | 11 | 3.4 | 14 | 2.1 | 284 | 7.0 |
| Unknown | 38 | 2.1 | 19 | 1.5 | 6 | 1.8 | 11 | 0.3 | 74 | 1.8 |

* Statistically significant at $p \leq .05$

Exhibit 13 details the type of location where the fatal injury occurred, by veteran/zip-code status. There were no significant differences across the veteran/zip-code categories. Notably, for all suicide victims, nearly three-quarters suffered their fatal injuries at home.

Exhibit 13: Location of Injury by Veteran/Zip Status, 2015-2018 (N=4,066)

| | Non-Veteran / Low Risk Zip | | Non-Veteran / High Risk Zip | | Veteran / Low Risk Zip | | Veteran / High Risk Zip | | Total | |
|--|----------------------------------|--------------|-----------------------------------|--------------|------------------------------|--------------|-------------------------------|--------------|-------------|--------------|
| Location of Injury | N | % | N | % | N | % | N | % | N | % |
| House or Apartment | 1215 | 66.8 | 883 | 71.2 | 248 | 76.3 | 531 | 79.4 | 2877 | 73.4 |
| Street/road, sidewalk, alley | 83 | 4.6 | 53 | 4.3 | 12 | 3.7 | 21 | 3.1 | 169 | 4.3 |
| Motor vehicle (excluding school bus, and public transportation) | 113 | 6.2 | 80 | 6.5 | 18 | 5.5 | 35 | 5.2 | 246 | 6.3 |
| Commercial establishment (bar, store, service station, etc.) | 17 | 0.9 | 11 | 0.9 | <5 | 0.6 | <5 | 0.3 | >28 | 0.8 |
| Parking lot/public parking garage | 36 | 2.0 | 25 | 2.0 | 7 | 2.2 | 16 | 2.4 | 84 | 2.1 |
| Jail, prison, group home, shelter, other supervised residential facility | 39 | 2.1 | 31 | 2.5 | <5 | 0.9 | <5 | 0.4 | >70 | 1.9 |
| Park, playground, public use area | 26 | 1.4 | 20 | 1.6 | 5 | 1.5 | 10 | 1.5 | 61 | 1.6 |
| Natural area (e.g., field, river, beaches, woods) | 141 | 7.8 | 54 | 4.4 | 15 | 4.6 | 35 | 5.2 | 245 | 6.3 |
| Hotel/motel | 48 | 2.6 | 29 | 2.3 | 12 | 3.7 | 12 | 1.8 | 101 | 2.6 |
| Other | 76 | 4.2 | 42 | 3.4 | 8 | 2.5 | 9 | 1.3 | 135 | 3.4 |
| Unknown | 24 | 1.3 | 12 | 1.0 | <5 | 0.3 | <5 | 0.4 | >36 | 1.0 |
| Total | 1818 | 100.0 | 1240 | 100.0 | 325 | 100.0 | 669 | 100.0 | 3918 | 100.0 |

* Statistically significant at $p \leq .05$

Exhibit 14 displays the results examining the method of injury used in the suicide. Veterans of both zip-code groups were significantly more likely to have used a firearm in the suicide, compared to non-veterans (81.4% and 86.3% compared to 53.7 and 63.0%, respectively). Also, of note, veterans who lived in low-risk communities died from poisoning 6.2% of the time, which was nearly eight times the percentage (0.8%) of veterans from high-risk zip codes.

Exhibit 14: Method of Death by Veteran/Zip-Code Status, 2015-2017 (N=3,812)

| | Non-Veteran / Low Risk Zip | | Non-Veteran / High Risk Zip | | Veteran / Low Risk Zip | | Veteran / High Risk Zip | | Total | |
|---|----------------------------------|-------|-----------------------------------|-------|------------------------------|-------|-------------------------------|-------|-------|-------|
| Method | N | % | N | % | N | % | N | % | N | % |
| Firearm | 977 | 53.7 | 781 | 63.0 | 263 | 81.4 | 544 | 86.3 | 2565 | 67.3 |
| Sharp Instrument | 31 | 1.7 | 14 | 1.1 | <5 | 1.2 | 9 | 1.4 | >54 | 1.4 |
| Blunt Instrument | 67 | 3.7 | 25 | 2.0 | <5 | 0.6 | <5 | 0.3 | >96 | 2.4 |
| Hanging, strangulation, suffocation | 564 | 31.0 | 290 | 23.4 | 40 | 12.4 | 67 | 10.6 | 961 | 25.2 |
| Poisoning | 151 | 8.3 | 110 | 8.9 | 20 | 6.2 | 5 | 0.8 | 286 | 7.5 |
| Other † | 28 | 1.5 | 20 | 1.6 | <5 | 0.6 | 5 | 0.8 | >53 | 1.4 |
| Total | 1818 | 100.0 | 1240 | 100.0 | 323 | 100.0 | 630 | 100.3 | 3812 | 100.0 |

† Including, but not limited to falls, fire/burns, motor vehicles and drowning.

* Statistically significant at $p \leq .05$

Exhibit 15 below summarizes circumstance characteristics of the suicide victims, by veteran / zip-code status. The table summarizes 24 different measures, organized into five different dimensions: 1) mental health and illness; 2) substance abuse/addiction; 3) interpersonal problems; 4) life stressors; and 5) suicidal history. The individual measures are mutually exclusive, and the table reports the number (and percent) of decedents for whom the circumstance was true. Additionally, each of the five dimensions are scaled with a measure (i.e. "Any...") indicating the number of decedents who had at least one individual measure in its category coded as true.

Most of the mental health measures saw significant differences across the veteran / zip-code groups. The general tendency was for non-veterans, regardless of neighborhood, to report higher rates of current depressed mood, current or past mental health treatment, or for any one or more mental health measure. This same pattern was seen with the alcohol and substance abuse measures.

Analyzing interpersonal problem measures, non-veterans were more likely to have had intimate partner problems, and family and other relationship problems than veteran suicide victims. There were several life stressor measures with significant differences. Job, financial, school, and recent criminal problems were all more likely for non-veterans. Physical health problems were about twice as common among veterans. Veterans in high-risk zip-codes had 42.9% of the time, compared to 23.2 non-veterans from the same neighborhoods. Veterans in low-risk zip-codes had 36.9% of the time, compared to 15.5 non-veterans from the same neighborhoods.

A history of suicidal thoughts and attempts were more common among non-veterans than veterans, regardless of where they lived.

Exhibit 15: Circumstances of Suicide Victims in Arizona by Veteran and Zip-Code Status, 2015-2018 (N=3,814)

| | Non-Veteran / Low-Risk (n=1668) | | Non-Veteran / High-Risk (n=1182) | | Veteran / Low-Risk (n=317) | | Veteran / High-Risk (n=645) | | Total (N=3814) | |
|---|---------------------------------|------|----------------------------------|------|----------------------------|------|-----------------------------|------|----------------|------|
| | N | % | N | % | N | % | N | % | N | % |
| Mental Health | | | | | | | | | | |
| Current Mental Health Problem | 693 | 41.5 | 509 | 43.1 | 125 | 39.4 | 275 | 42.6 | 1602 | 42.0 |
| Current Depressed Mood* | 612 | 36.7 | 464 | 39.3 | 95 | 30.0 | 221 | 34.3 | 1392 | 36.5 |
| Ever Treated for Mental Illness or Substance Misuse* | 479 | 28.7 | 354 | 29.9 | 60 | 18.9 | 147 | 22.8 | 1040 | 27.3 |
| Current Treatment for Mental Illness or Substance Misuse* | 323 | 19.4 | 261 | 22.1 | 45 | 14.2 | 119 | 18.4 | 748 | 19.6 |
| Any Mental Health Problem* | 1003 | 60.1 | 746 | 63.1 | 177 | 55.8 | 380 | 58.9 | 2306 | 60.5 |
| Substance Abuse / Addiction | | | | | | | | | | |
| Alcohol Problem* | 340 | 20.4 | 233 | 19.7 | 47 | 14.8 | 106 | 16.4 | 726 | 19.0 |
| Other Substance Problem* | 382 | 22.9 | 227 | 19.2 | 26 | 8.2 | 46 | 7.1 | 681 | 17.9 |
| Other Addiction (gambling, sexual, etc.) | 8 | 0.5 | 9 | 0.8 | <5 | NA | <5 | NA | >17 | 0.6 |
| Any Addiction Problem* | 602 | 36.1 | 398 | 33.7 | 61 | 19.2 | 136 | 21.1 | 1197 | 31.4 |
| Interpersonal | | | | | | | | | | |
| Family Relationship Problem* | 168 | 10.1 | 119 | 10.1 | 19 | 6.0 | 31 | 4.8 | 337 | 8.8 |
| Intimate Partner Problem* | 518 | 31.1 | 328 | 27.7 | 61 | 19.2 | 124 | 19.2 | 1031 | 27.0 |
| Other Relationship Problem* | 40 | 2.4 | 25 | 2.1 | <5 | NA | 9 | 1.4 | >74 | 2.0 |
| Perpetrator of Interpersonal Violence in Past Month | 52 | 3.1 | 41 | 3.5 | 10 | 3.2 | 18 | 2.8 | 121 | 3.2 |
| Victim of Interpersonal Violence in Past Month | 6 | 0.4 | 5 | 0.4 | 0 | 0.0 | <5 | NA | >11 | 0.3 |
| Suicide of Friend/Family in Past 5 Years | 33 | 2.0 | 20 | 1.7 | 5 | 1.6 | 8 | 1.2 | 66 | 1.7 |
| Other Death of Friend/Family | 115 | 6.9 | 65 | 5.5 | 17 | 5.4 | 50 | 7.8 | 247 | 6.5 |
| Any Interpersonal Problem* | 756 | 45.3 | 496 | 42.0 | 100 | 31.5 | 201 | 31.2 | 1553 | 40.7 |
| Life Stressor | | | | | | | | | | |
| Physical Health Problem* | 258 | 15.5 | 274 | 23.2 | 117 | 36.9 | 277 | 42.9 | 926 | 24.3 |
| Job Problem* | 197 | 11.8 | 148 | 12.5 | 19 | 6.0 | 37 | 5.7 | 401 | 10.5 |
| Recent Criminal Related Legal Problem* | 139 | 8.3 | 115 | 9.7 | 19 | 6.0 | 34 | 5.3 | 307 | 8.0 |
| Other Legal Problems | 45 | 2.7 | 40 | 3.4 | 7 | 2.2 | 14 | 2.2 | 106 | 2.8 |
| Financial Problem* | 160 | 9.6 | 137 | 11.6 | 17 | 5.4 | 47 | 7.3 | 361 | 9.5 |
| School Problem* | 34 | 2.0 | 18 | 1.5 | <5 | NA | <5 | NA | >52 | 1.4 |
| Eviction or loss of home | <5 | NA | 50 | 4.2 | 9 | 2.8 | 22 | 3.4 | 138 | 3.6 |
| Any Life Stressor* | 684 | 41.0 | 597 | 50.5 | 167 | 52.7 | 366 | 56.7 | 1814 | 47.6 |
| Suicide Event | | | | | | | | | | |
| History of Suicide Attempts* | 363 | 21.8 | 238 | 20.1 | 51 | 16.1 | 95 | 14.7 | 747 | 19.6 |
| Disclosed Intent to Complete Suicide | 517 | 31.0 | 361 | 30.5 | 81 | 25.6 | 194 | 30.1 | 1153 | 30.2 |
| History of Suicidal Thoughts* | 840 | 50.4 | 836 | 70.7 | 132 | 41.6 | 295 | 45.7 | 2103 | 55.1 |
| Any Indication of Suicide* | 1005 | 60.3 | 648 | 54.8 | 160 | 50.5 | 344 | 53.3 | 2157 | 56.6 |

* Statistically significant at p < .05

Note: Circumstance characteristics are not mutually exclusive, and any victim may have any number of circumstances present.

Suicides involving female victims

The final set of analyses focus on female victims of suicide. Men outpace women by more than a two-to-one ratio, and the number of female veteran suicide victims is sufficiently low as to prohibit the same level of geospatial analyses as was available to male victims. Given this limitation, we restricted the analyses to just those women who reside in Maricopa County.

There were a total of 1,198 suicides in the data, but after excluding those for whom we did not know the veteran status (N=9), and those living outside Maricopa County (N=534), there were 636 cases for analyses. See Exhibit 16 below.

Exhibit 16: Residence County among Female Suicide Victims by Veteran Status, 2015-2018 (N=1,198)

| | Veteran Status | | | | | | Total | |
|----------------------------|----------------|-------|---------|-------|---------|-------|-------|-------|
| | Non-Veteran | | Veteran | | Unknown | | | |
| | n | % | n | % | n | % | n | % |
| Maricopa | 613 | 54.2 | 23 | 59.0 | 9 | 32.1 | 645 | 53.8 |
| Pima | 168 | 14.9 | 7 | 17.9 | 5 | 17.9 | 180 | 15.0 |
| All Other Arizona Counties | 313 | 27.7 | 6 | 15.4 | 15 | 53.6 | 334 | 27.9 |
| Outside Arizona | 41 | 3.6 | 3 | 7.7 | 1 | 3.6 | 45 | 3.8 |
| Total | 1131 | 100.0 | 39 | 100.0 | 28 | 100.0 | 1198 | 100.0 |

Exhibit 17 shows the race/ethnicity distribution for female suicide victims residing in Maricopa County. There were no significant differences between veteran and non-veteran victims.

Exhibit 17: Race and Ethnicity among Female Maricopa County Residents by Veteran Status*, 2015-2018 (N=632)

| | Veteran Status | | | | Total | |
|---|----------------|-------|---------|-------|-------|-------|
| | Non-Veteran | | Veteran | | | |
| | n | % | n | % | n | % |
| White, Non-Hispanic | 482 | 79.1 | 20 | 87.0 | 502 | 79.4 |
| Black | 18 | 3.0 | 0 | 0.0 | 18 | 2.8 |
| Native American | 15 | 2.5 | 0 | 0.0 | 15 | 2.4 |
| Hispanic, Any Race | 23 | 3.8 | <5 | NA | >23 | >3.8 |
| Asian or Pacific Islander, and Other | 71 | 11.7 | <5 | NA | >71 | >11.6 |
| Total | 609 | 100.0 | 23 | 100.0 | 632 | 100.0 |

Exhibit 18 shows the distribution by age group of female Maricopa County suicide victims. There were no significant differences between the veterans and non-veterans.

Exhibit 18: Age Group among Female Maricopa County Residents by Veteran Status, 2015-2018 (N=613)

| | Veteran Status | | | | Total | |
|-------------|----------------|-------|---------|-------|-------|-------|
| | Non-Veteran | | Veteran | | | |
| | n | % | n | % | n | % |
| 18-34 years | 151 | 25.6 | 7 | 30.4 | 158 | 25.8 |
| 35-54 years | 221 | 37.5 | 10 | 43.5 | 231 | 37.7 |
| 55-64 years | 117 | 19.8 | <5 | NA | >117 | >19.6 |
| 65-74 years | 74 | 12.5 | <5 | NA | >74 | >12.4 |
| 75 or older | 27 | 4.6 | <5 | NA | >27 | >4.6 |
| Total | 590 | 100.0 | 23 | 100.0 | 613 | 100.0 |

Comparing veterans and non-veterans on selected demographic characteristics (i.e. completed education, marital status, and birthplace), there were no significant differences. This is inconsistent with previous comparisons shown above. It is unclear if this finding (or lack of significant differences) is due to the specific nature of female suicide victims in Maricopa County, or that there were only 23 female veterans in the analysis data. See Exhibit 19 below.

Exhibit 19: Completed Education, Marital Status and Birthplace among Female Maricopa County Suicide Victims Aged 18 or Older by Veteran Status, 2015-2017 (N=613)

| | Non-Veteran | | Veteran | | Total | |
|--------------------------------|-------------|------|---------|------|-------|------|
| | N | % | N | % | N | % |
| Completed Education | | | | | | |
| <= 8th grade | 10 | 1.7 | 0 | 0.0 | 10 | 1.6 |
| 9th - 12th grade | 28 | 4.7 | <5 | NA | 29 | 4.7 |
| High school or GED grad | 167 | 28.3 | <5 | NA | 169 | 27.6 |
| Some college credit | 136 | 23.1 | 10 | 43.5 | 146 | 23.8 |
| Associate or bachelor's degree | 189 | 32.0 | 5 | 21.7 | 194 | 31.6 |
| Advanced Degree | 52 | 8.8 | 5 | 21.7 | 57 | 9.3 |
| Unknown | 8 | 1.4 | 0 | 0.0 | 8 | 1.3 |
| Marital Status | | | | | | |
| Never Married | 161 | 27.3 | 5 | 21.7 | 166 | 27.1 |
| Married | 172 | 29.2 | 5 | 21.7 | 177 | 28.9 |
| Married, but Separated | 30 | 5.1 | <5 | NA | >30 | 5.1 |
| Divorced | 178 | 30.2 | 11 | 47.8 | 189 | 30.8 |
| Widowed | 45 | 7.6 | 1 | 4.3 | 46 | 7.5 |

| | | | | | | |
|-----------------------------|-----|------|----|------|-----|------|
| Single, unspecified | <5 | NA | 0 | 0.0 | <5 | NA |
| Unknown | <5 | NA | 0 | 0.0 | <5 | NA |
| Birthplace | | | | | | |
| Arizona | 143 | 24.2 | 7 | 30.4 | 150 | 24.5 |
| Other US state or territory | 382 | 64.7 | 16 | 69.6 | 398 | 64.9 |
| Foreign Country | 58 | 9.8 | 0 | 0.0 | 58 | 9.5 |
| Unknown | 7 | 1.2 | 0 | 0.0 | 7 | 1.1 |

* Statistically significant at $p \leq .05$

There were no significant differences between veterans and non-veterans regarding the type of location of the fatal injury. See Exhibit 20 below.

Exhibit 20: Type of Location of Fatal Injury among Female Maricopa County Suicide Victims by Veteran Status, 2015-2018 (N=635)

| Location of Injury | Non-Veteran | | Veteran | | Total | |
|--|-------------|--------------|-----------|--------------|------------|--------------|
| | N | % | N | % | N | % |
| House or Apartment | 494 | 80.7 | 18 | 78.3 | 512 | 80.6 |
| Street/road, sidewalk, alley | 10 | 1.6 | 0 | 0.0 | 10 | 1.6 |
| Motor vehicle (excluding school bus and public transportation) | 35 | 5.7 | <5 | NA | >35 | 5.7 |
| Commercial establishment (bar, store, service station, etc.) | <5 | NA | 0 | 0.0 | <5 | NA |
| Parking lot/public parking garage | 7 | 1.1 | 0 | 0.0 | 7 | 1.1 |
| Jail, prison, group home, shelter, other supervised residential facility | <5 | NA | 0 | 0.0 | <5 | NA |
| Park, playground, public use area | 5 | 0.8 | 0 | 0.0 | 5 | 0.8 |
| Natural area (e.g., field, river, beach, woods) | 17 | 2.8 | <5 | NA | >17 | 3.0 |
| Hotel/motel | 20 | 3.3 | <5 | NA | >20 | 3.3 |
| Other | 12 | 2.0 | <5 | NA | >12 | 2.0 |
| Unknown | 5 | 0.8 | 0 | 0.0 | 5 | 0.8 |
| Total | 612 | 100.0 | 23 | 100.0 | 635 | 100.0 |

* Statistically significant at $p \leq .05$

Exhibit 21 displays the results of the method of death employed in the suicide. Although the percentage of veterans using a firearm appears much higher than non-veterans, it was not a statistically significant difference.

Exhibit 21: Method of Death among Female Maricopa Suicide Victims by Veteran Status, 2015-2018 (N=636)

| Method | Non-Veteran | | Veteran | | Total | |
|-------------------------------------|-------------|--------------|---------------|--------------|------------|--------------|
| | N | % | N | % | N | % |
| Firearm | 221 | 36.1 | 14 | 60.9 | 235 | 36.9 |
| Sharp Instrument | 6 | 1.0 | 0 | 0.0 | 6 | 0.9 |
| Blunt Instrument | 13 | 2.1 | 0 | 0.0 | 13 | 2.0 |
| Hanging, strangulation, suffocation | 165 | 26.9 | 5 | 21.7 | 170 | 26.7 |
| Poisoning | 198 | 32.3 | <5 | NA | >198 | 31.8 |
| Other † | 10 | 1.6 | 0 | 0.0 | 10 | 1.6 |
| Unknown | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 613 | 100.0 | >19 | 100.0 | 636 | 100.0 |

† Including, but not limited to falls, fire/burns, motor vehicles and drowning.

* Statistically significant at $p \leq .05$

Exhibit 22 below summarizes circumstance characteristics of Maricopa County female suicide victims, by veteran status. The table summarizes 24 different measures, organized into five different dimensions: 1) mental health and illness; 2) substance abuse/addiction; 3) interpersonal problems; 4) life stressors; and 5) suicidal history. The individual measures are not mutually exclusive, and the table reports those descents for whom the circumstance was true. Additionally, each of the five dimensions are scaled with a measure indicating the number of decedents who had at least one individual component for that dimension coded as “true.”

There were no significant differences between veterans and non-veterans across each measure and dimension. While this is consistent with previously presented of female suicide victims living in Maricopa County, it is inconsistent with previous AZ-VDRS findings examining these measures with various combinations of subpopulations and analysis groups. This lack of significant differences in the findings, may be due to sample size.

Exhibit 22: Circumstances of Female Suicide Victims in Maricopa County by Veteran Status, 2015-2018 (N=632)

| | Non-Veteran | | Veteran | | Total | |
|--|-------------|------|---------|-----|-------|------|
| | N | % | N | % | N | % |
| Mental Health | | | | | | |
| Current Mental Health Problem | 393 | 14.4 | 16 | 1.7 | 409 | 11.1 |
| Current Depressed Mood | 283 | 10.3 | 7 | 0.7 | 290 | 7.9 |
| Ever Treated for Mental Illness or Substance Misuse | 282 | 10.3 | 13 | 1.4 | 295 | 8.0 |
| Current Treatment for Mental Illness or Substance Misuse | 232 | 8.5 | 10 | 1.1 | 242 | 6.6 |
| Any Mental Health Problem | 157 | 5.7 | 6 | 0.6 | 163 | 4.4 |
| Substance Abuse / Addiction | | | | | | |
| Alcohol Problem | 113 | 4.1 | 4 | 0.4 | 117 | 3.2 |
| Other Substance Problem | 136 | 5.0 | 3 | 0.3 | 139 | 3.8 |
| Other Addiction (gambling, sexual, etc.) | 7 | 0.3 | 0 | 0.0 | 7 | 0.2 |
| Any Addiction Problem | 206 | 7.5 | 7 | 0.7 | 213 | 5.8 |
| Interpersonal | | | | | | |
| Family Relationship Problem | 79 | 2.9 | 1 | 0.1 | 80 | 2.2 |
| Intimate Partner Problem | 170 | 6.2 | 4 | 0.4 | 174 | 4.7 |
| Other Relationship Problem | 16 | 0.6 | 0 | 0.0 | 16 | 0.4 |
| Perpetrator of Interpersonal Violence in Past Month | 7 | 0.3 | 1 | 0.1 | 8 | 0.2 |
| Victim of Interpersonal Violence in Past Month | 7 | 0.3 | 0 | 0.0 | 7 | 0.2 |
| Suicide of Friend/Family in Past 5 Years | 23 | 0.8 | 3 | 0.3 | 26 | 0.7 |
| Other Death of Friend/Family | 45 | 1.6 | 3 | 0.3 | 48 | 1.3 |
| Any Interpersonal Problem | 308 | 11.3 | 10 | 1.1 | 318 | 8.6 |
| Life Stressor | | | | | | |
| Physical Health Problem | 167 | 6.1 | 4 | 0.4 | 171 | 4.6 |
| Job Problem | 48 | 1.8 | 2 | 0.2 | 50 | 1.4 |
| Recent Criminal Related Legal Problem | 29 | 1.1 | 2 | 0.2 | 31 | 0.8 |
| Other Legal Problems | 20 | 0.7 | 0 | 0.0 | 20 | 0.5 |
| Financial Problem | 71 | 2.6 | 0 | 0.0 | 71 | 1.9 |
| School Problem | 11 | 0.4 | 0 | 0.0 | 11 | 0.3 |
| Eviction or Loss of Home | 34 | 1.2 | 1 | 0.1 | 35 | 1.0 |
| Any Life Stressor | 296 | 10.8 | 9 | 1.0 | 305 | 8.3 |
| Suicide Event | | | | | | |
| History of Suicide Attempts | 248 | 9.1 | 10 | 1.1 | 258 | 7.0 |
| Disclosed Intent to Complete Suicide | 194 | 7.1 | 10 | 1.1 | 204 | 5.5 |
| History of Suicidal Thoughts | 354 | 12.9 | 14 | 1.5 | 368 | 10.0 |
| Any Indication of Suicide | 443 | 16.2 | 19 | 2.0 | 462 | 12.6 |

* Statistically significant at $p < .05$

Note: Circumstance characteristics are not mutually exclusive, and any victim may have any number of circumstances present.

Endnotes

ⁱ Huguet, N., Kaplan, M. S., & McFarland, B. H. (2014). The effects of misclassification biases on veteran suicide rate estimates. *American journal of public health*, 104(1), 151-155.