

Suicides

Involving Depression

**Arizona Violent Death
Reporting System**

January 1, 2015 – December 31, 2017





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, 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 Depression*—were drawn from the compilation and analysis of three years of AZ-VDRS data, from January 1, 2015 through December 31, 2017.

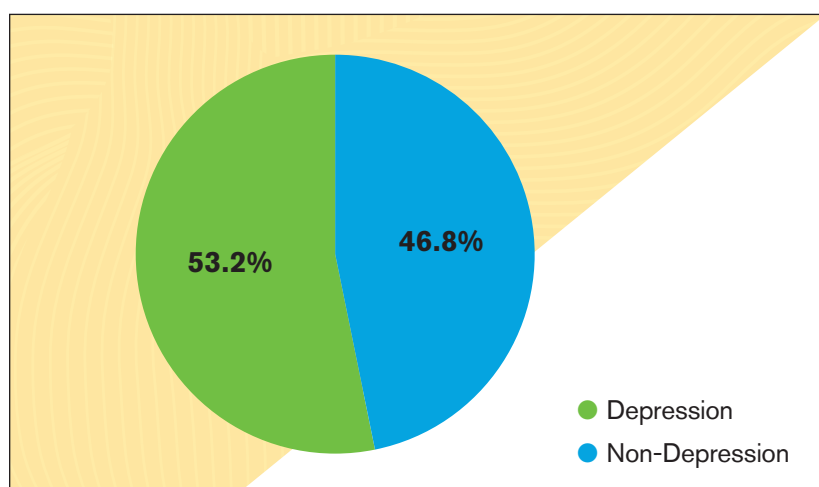
AZ-VDRS recorded a total of 5,711 violent deaths for this period; circumstance data were available for 5,365 (93.9%) of the decedents. From these, we excluded homicides ($n=1047$; 19.5%) and violent deaths of undetermined manner ($n=638$; 11.9%), after which our sample consisted of 3,680 (68.6%) suicides for which circumstance data were available.

We determined that a suicide victim had been experiencing depression (1) when a medical diagnosis of depression/dysthymia existed and/or (2) when the decedent was reported to have had a depressed mood at the time of death. This is consistent with prior research from the Centers for Disease Control and Prevention (CDC), using the NVDRS data.

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

EXHIBIT 1:

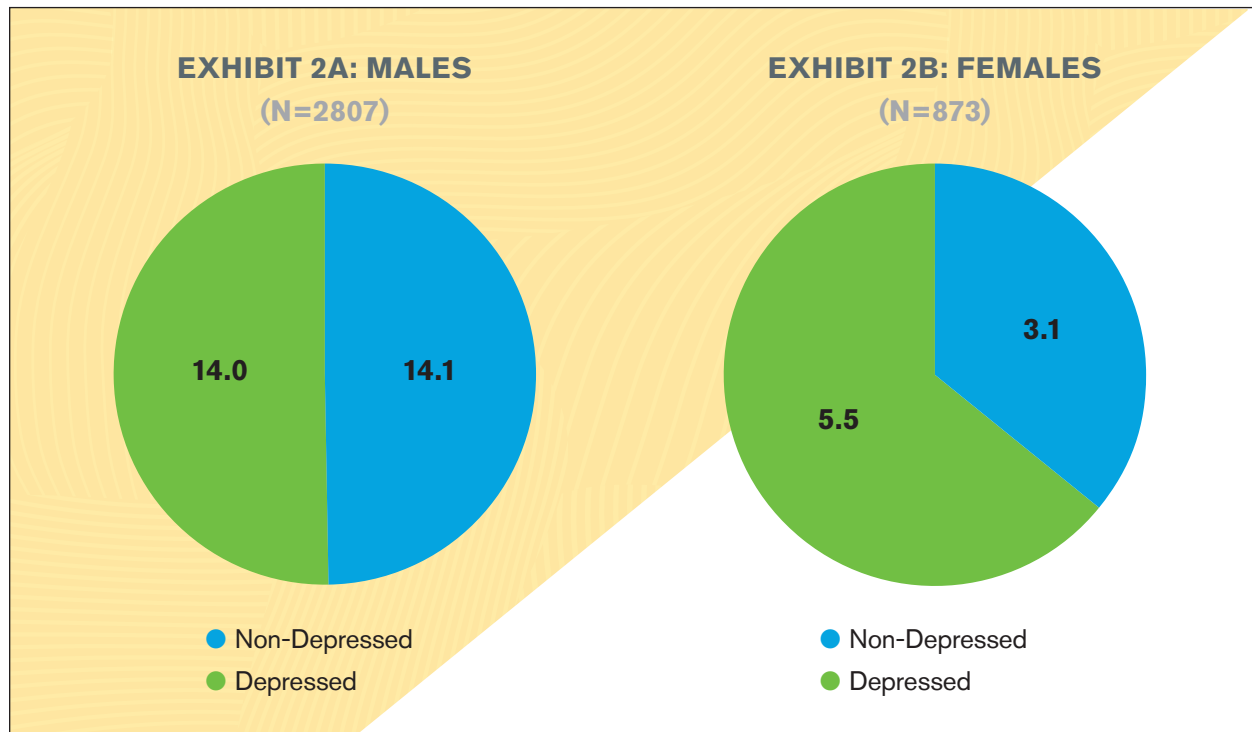
PERCENTAGES OF SUICIDES BY DEPRESSION STATUS, 2015-2017 (N=3680)



- In 2015-2017, in Arizona, slightly more than half of all suicide victims (53.2%) had been diagnosed with or exhibited depression near the time of death.

EXHIBITS 2A & 2B:

SUICIDE RATES PER 100,000 POPULATION BY SEX* AND DEPRESSION STATUS, 2015-2017

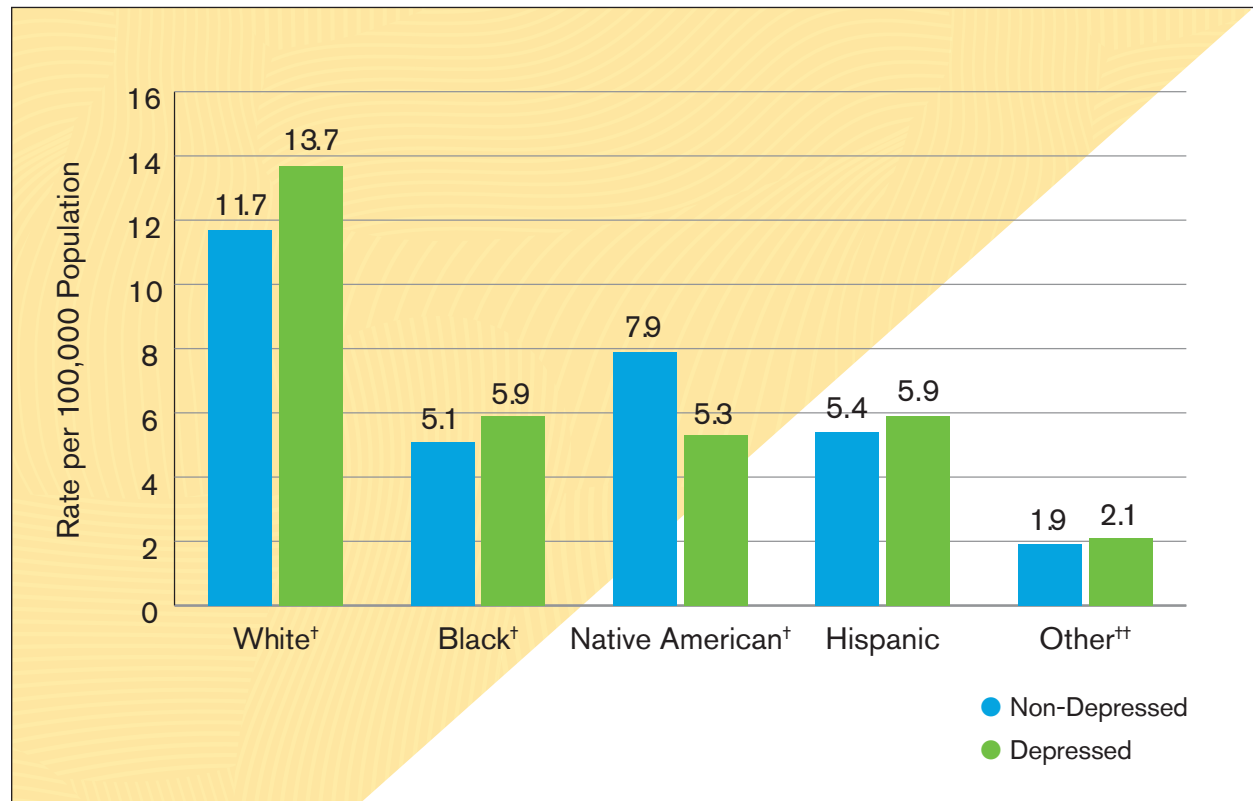


* Statistically significant at $p \leq .05$

- Gender-based suicide rates per 100,000 population were notably higher for males (28.1) than for females (8.6); about 1 in 2 male suicides and nearly 2 in 3 female suicides were associated with depression indicators.
- Suicide rates were almost the same for males **with** (14.0) and **without** (14.1) depression indicators near the time of death.
- The suicide rate for females **with** depression indicators (5.5) was nearly twice that of females **without** depression indicators (3.1) near the time of death.

EXHIBIT 3:

SUICIDE RATES BY RACE/ETHNICITY* AND DEPRESSION STATUS, 2015–2017



* Statistically significant at $p \leq .05$

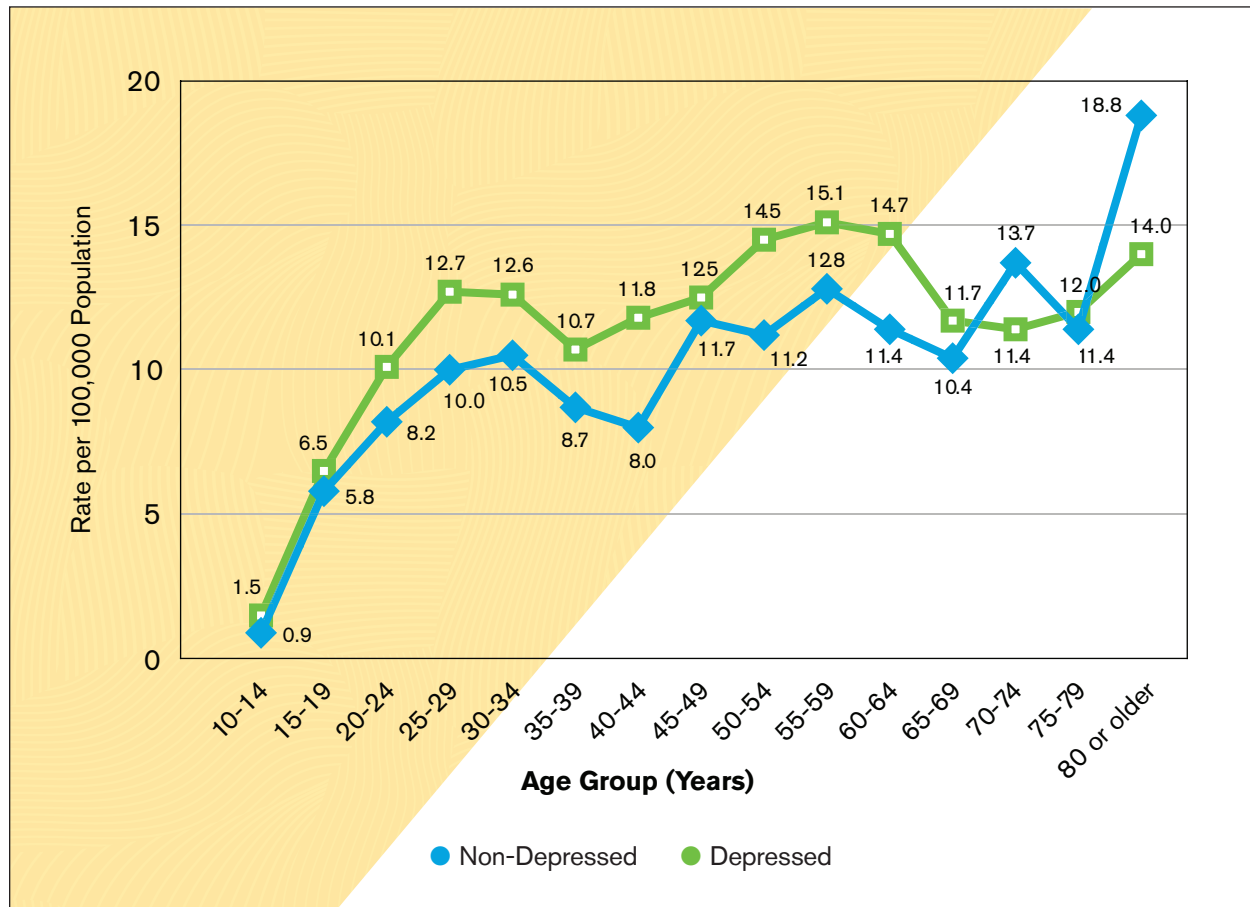
[†] Non-Hispanic/Latino

^{††} Includes Asian, Native Hawaiian, Pacific Islander, Other and Unspecified

- Suicide rates per 100,000 population overall, regardless of depression status, were highest for individuals in the White, non-Hispanic category (25.4), followed by Native American (13.2), Hispanic (11.3), Black (11.0), and Other (4.0).
- Within race/ethnicity groups, suicide rates were slightly higher for individuals **with** depression indicators than for those **without**; the exception is the Native American group, whose suicide rate was actually higher for those **without** depression indicators (7.9, 5.3).
- The difference between suicide rates for Hispanic individuals with and without depression indicators was the least pronounced; the Hispanic suicide rate for those **with** depression indicators (5.9) was about 9% higher than the rate for those **without** depression indicators (5.4).
- Suicide rates for individuals **with** depression indicators were also higher than the rates for those **without** by 17% in the White, non-Hispanic group; 16% in the Black group; and 11% in the Other group.

EXHIBIT 4:

SUICIDE RATES BY AGE GROUP* AND DEPRESSION STATUS, 2015-2017



* Statistically significant at $p \leq .05$

Note: Online readers can rollover data points to view age and rate values.

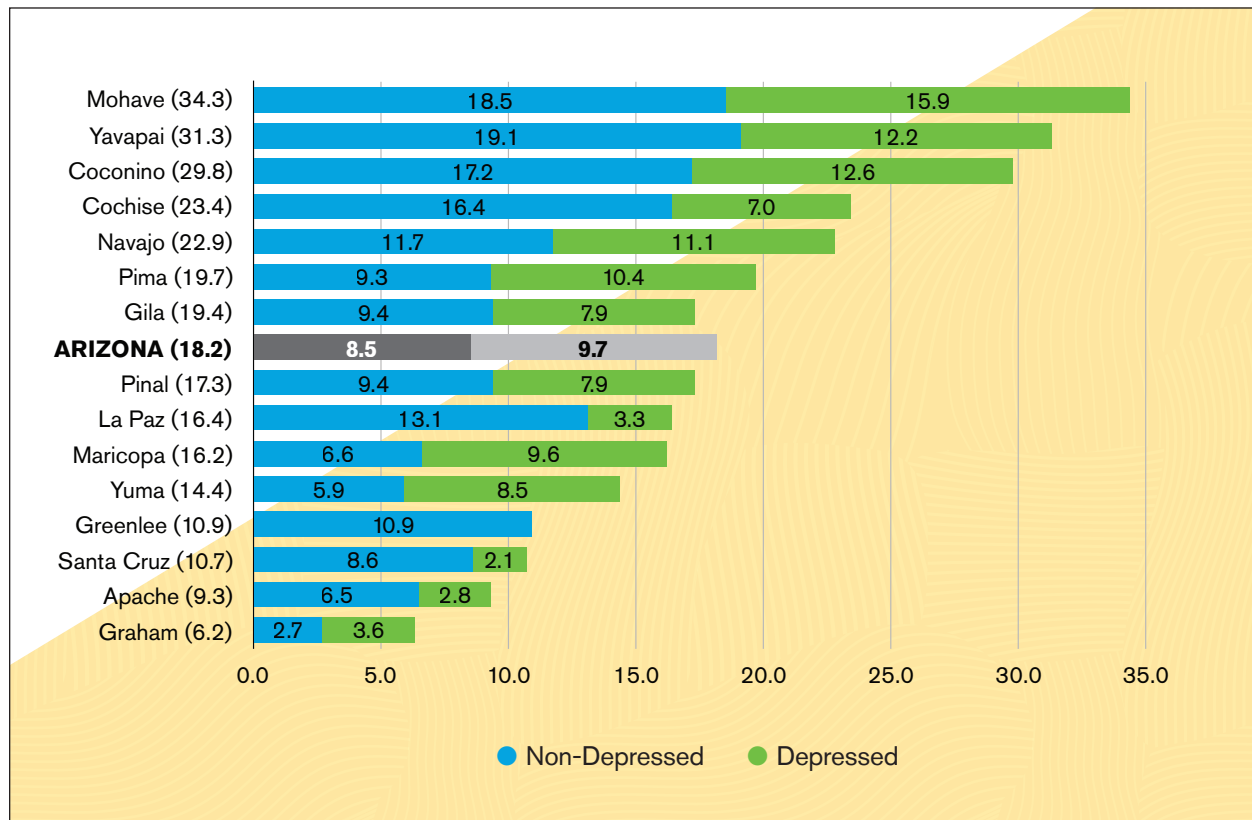
Visit: cvpcs.asu.edu/projects/arizona-violent-death-reporting-system

Note: The data points above represent a snapshot of each age group within a specific time period (2015-2017); they should not be interpreted as a longitudinal study of the suicide-depression relationship over a lifetime.

- Within most age groups, suicide rates per 100,000 population, with and without depression indicators, followed similar trends, with the rates being somewhat lower among those **without** depression indicators.
- For those in the 70-74, and 80-and-older groups, the pattern reverses, as rates of suicide for individuals **without** depression indicators become higher than rates for those **with** depression indicators.
- Notably, for children in the 10-14 age group, the suicide rate, although very low, was higher for children **with** depression indicators (1.5, 0.9), by about 67%.

EXHIBIT 5:

SUICIDE RATES PER 100,000 POPULATION BY COUNTY* AND DEPRESSION STATUS, 2015-2017 (N=3664)



* Statistically significant at $p \leq .05$

- In 2015-2017, Arizona's overall suicide rate per 100,000 population was about 18.2.
- Mohave, Yavapai, and Coconino counties each had suicide rates of about 30 or higher.
- Only Greenlee County reported no suicides linked with depression during this period.
- Maricopa, Yuma, Graham, and Pima counties each reported suicide rates with depression indicators that exceeded their rates without depression indicators by about 46%, 44%, 33% and 12%, respectively.



EXHIBIT 6:**EDUCATION COMPLETED, MARITAL STATUS, VETERAN STATUS, AND BIRTHPLACE
— SUICIDE VICTIMS AGES 18 AND OLDER BY DEPRESSION STATUS, 2015-2017**

	NON-DEPRESSION		DEPRESSION		TOTAL	
	n	%	n	%	n	%
Education Completed*						
<= 8th grade	48	2.9	44	2.3	92	2.6
9th – 12th grade	192	11.6	162	8.5	354	9.9
High school grad or GED	612	36.9	633	33.3	1245	35.0
Some college credit	316	19.0	438	23.0	754	21.2
Associate or bachelor's degree	330	19.9	436	22.9	766	21.5
Advanced degree	100	6.0	150	7.9	250	7.0
Unknown	61	3.7	39	2.1	100	2.8
Marital Status*						
Never married	560	33.8	620	32.6	1180	33.1
Married	478	28.8	548	28.8	1026	28.8
Married, but separated	62	3.7	102	5.4	164	4.6
Divorced	425	25.6	474	24.9	899	25.2
Widowed	96	5.8	136	7.2	232	6.5
Single, unspecified	<5	na	6	0.3	6	0.3
Unknown	35	2.1	16	0.8	51	1.4
Veteran Status*						
Non-veteran	1233	74.3	1491	78.4	2724	76.5
Veteran	379	22.8	382	20.1	761	21.4
Unknown	47	2.8	29	1.5	76	2.1
Birthplace*						
Arizona	394	23.7	447	12.6	841	23.6
Other US state or territory	1087	65.5	1257	35.3	2344	65.8
Foreign country	127	7.7	163	4.6	290	8.1
Unknown	51	3.1	35	1.0	86	2.4

* Statistically significant at $p \leq .05$

Note: CDC reporting requirements require that counts less than 5 not be shown for reasons related to data reliability and identity protection. These counts can, however, be included in totals. Therefore, totals in each row may include values represented here only as <5.

Suicide victims **with** depression indicators differed significantly from those **without** depression indicators with respect to education completed, marital status, veteran status and birthplace.



Suicide victims with depression indicators attained higher levels of education:

53.8% of victims **with** depression indicators had earned, at minimum, some college credit, compared to 44.9% of victims **without**.



Veterans **without** recognized depression indicators (22.8%) were more likely to commit suicide than those **with** recognized depression indicators (20.1%).

EXHIBIT 7:

LOCATION OF SUICIDE* BY DEPRESSION STATUS, 2015-2017 (N=3680)

	NON-DEPRESSION		DEPRESSION		TOTAL	
	n	%	n	%	n	%
Location*						
House or apartment	1189	69.1	1506	76.9	2695	73.2
Street/road, sidewalk, alley	88	5.1	57	2.9	145	3.9
Motor vehicle (excluding school bus and public transportation)	84	4.9	103	5.3	187	5.1
Commercial establishment (e.g., bar, store, service station)	10	0.6	21	1.1	31	0.8
Parking lot/public parking garage	40	2.3	40	2.0	80	2.2
Jail, prison, group home, shelter, other supervised residential facility	39	2.3	21	1.1	60	1.6
Park, playground, public use area	31	1.8	27	1.4	58	1.6
Natural area (e.g., field, river, beach, woods)	108	6.3	75	3.8	183	5.0
Hotel/motel	50	2.9	60	3.1	110	3.0
Other	70	4.1	42	2.1	112	3.0
Unknown	12	0.7	7	0.4	19	0.5

* Statistically significant at $p \leq .05$

- Suicide victims with depression indicators were more likely to have died at a private residence than suicide victims without depression indicators (76.9%, 69.1%).
- Suicide victims with depression indicators were less frequently found in parks, playgrounds, public use areas, or natural areas, such as fields, woods, or the desert, when compared to suicide victims without depression indicators (5.2%, 8.1%, respectively).

EXHIBIT 8:

METHODS OF SUICIDE* BY DEPRESSION STATUS, 2015-2017 (N=3680)

	NON-DEPRESSION		DEPRESSION		TOTAL	
	n	%	n	%	n	%
Methods						
Firearm	1055	61.3	1117	57.0	2172	59.0
Sharp instrument	29	1.7	26	1.3	55	1.5
Blunt instrument	64	3.7	39	2.0	103	2.8
Hanging, strangulation and suffocation	362	21.0	438	22.4	800	21.7
Poisoning	197	11.4	316	16.1	513	13.9
Other ^a	14	0.8	23	1.2	37	1.0
Unknown	0	0.0	0	0.0	0	0.0

* Statistically significant at $p \leq .05$

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

- Firearms were more likely to have been used in suicides **without** depression indicators (61.3%) than in suicides **with** depression indicators (57.0%).
- For both groups of suicide victims, hanging, strangulation, suffocation were the second most common methods used; and the proportion of all suicides involving these were nearly the same for those **with** (22.4%) and **without** (21.0%) depression indicators.
- Poisoning was more likely to be used in suicides **with** depression indicators (16.1%) than **without** (11.4%).

EXHIBIT 9:**VICTIM CIRCUMSTANCES RELATED TO SUICIDE BY DEPRESSION STATUS,
2015–2017 (N=3680)**

	NON-DEPRESSION		DEPRESSION		TOTAL	
	n	%	n	%	n	%
Mental Health Issues						
Current mental health problem*	291	16.9	1346	68.7	1637	44.5
Ever treated for mental illness or substance misuse*	203	11.8	818	41.8	1021	27.7
Current treatment for mental illness, substance misuse*	130	7.6	621	31.7	751	20.4
<i>Total victims w/ one or more mental health factors*</i>	344	20.0	1959	100.0	2303	62.6
Substance Abuse / Addiction						
Alcohol problem*	232	13.5	421	21.5	653	17.7
Other substance problem*	280	16.3	379	19.3	659	17.9
Other addiction (gambling, sexual, etc.)	8	0.5	17	0.9	25	0.7
<i>Total victims w/ one or more addiction factors*</i>	448	26.1	675	34.5	1123	30.5
Interpersonal Issues						
Family relationship problem	138	8.0	196	10.0	334	9.1
Intimate partner problem*	373	21.7	535	27.3	908	24.7
Other relationship problem	24	1.4	45	2.3	69	1.9
Perpetrator of interpersonal violence in past month*	53	3.1	37	1.9	90	2.4
Victim of interpersonal violence in past month*	<5	na	15	0.8	15	0.5
Suicide of friend/family in past 5 years	20	1.2	47	2.4	67	1.8
Other death of friend/family*	50	2.9	154	7.9	204	5.5
<i>Total victims w/ one or more interpersonal factors*</i>	562	32.7	863	44.1	1425	38.7
Life Stressors						
Physical health problem*	414	24.1	537	27.4	951	25.8
Job problem*	91	5.3	263	13.4	354	9.6
Recent criminal related legal problem*	133	7.7	119	6.1	252	6.8
Other legal problems*	24	1.4	55	2.8	79	2.1
Financial problem*	99	5.8	246	12.6	345	9.4
School problem*	11	0.6	33	1.7	44	1.2
Eviction or loss of home	55	3.2	83	4.2	138	3.8
<i>Total victims w/ one or more life stressor factors*</i>	710	41.3	1015	51.8	1725	46.9
Suicidal History						
Previous attempts*	254	14.8	583	29.8	837	22.7
Disclosed intent to commit*	423	24.6	688	35.1	1111	30.2
Suicidal thoughts*	621	36.1	1088	55.5	1709	46.4
<i>Total victims w/ one or more historical factors*</i>	822	47.8	1356	69.2	2178	59.2

* Statistically significant at $p \leq .05$

Note: Circumstances are not mutually exclusive; individually, suicide victims may have been subject to any number of them.

Note: By category, only victims with one or more of the factors listed in this exhibit are included in the totals.



- For a substantial number of circumstantial factors (e.g. mental health, alcohol, or financial problems), the relative proportions of suicide victims with and without depression indicators who were subjected to them differed significantly.
- For 1 in 3 suicide victims **with** depression indicators, an alcohol or other substance abuse problem or addiction was reported; 1 in 4 suicide victims **without** depression indicators had some form of addiction problem.
- Intimate partner problems were reported for more than 1 in 5 suicide victims **without** depression indicators and for more than 1 in 4 suicide victims **with** depression indicators.
- Life stressors were reported for more than half of suicide victims **with** depression indicators; about 1 in 4 reportedly had a physical health problem.
- A history of suicidal thoughts was reported for more than half of suicide victims **with** depression indicators, and 1 in 3 had expressed the intention to commit suicide.

AZ-VDRS Findings



- Depression was a risk factor for Arizona's suicide victims; half of all male victims and two-thirds of all female victims were reported to have had depression indicators.



- Depression was a significant risk factor for female suicide victims, who had a suicide rate about 77% higher than females without depression.



- During 2015-2017, the suicide rate for Native Americans in Arizona was lower for those with depression indicators than for those without depression indicators (5.3, 7.9); this was the only racial/ethnic group for whom this was true.



- Arizona counties differed substantially with respect to both their overall suicide rates and their relative proportions of suicides with depression indicators. Counties with particularly high rates of suicide, as well as of suicides linked with depression indicators, included Mohave, Yavapai, and Coconino.



- Sociodemographic differences, such as educational attainment, veteran and marital status, also were often significant when comparing suicide victims with and without depression indicators. Specifically, those with depression were more likely to have a college education, and less likely to be veterans.

Implications/Recommendations on Suicides Involving Depression

Surprisingly, nearly half of all Arizona suicides during 2015-2017 *were not associated with reports of depression or dysthymia (depressed mood)*. Only about 53% were linked with depression indicators. Although this association was stronger among female victims, with almost two-thirds reported as having been depressed, this was still less than we might expect.

Yet among the 48% of all suicide victims reported to have had no indications of depression, more than a third (36%) had described suicidal ideation, a quarter (25%) had disclosed the intention to commit suicide, and almost 15% had made prior attempts. In other words, a significant and substantial portion of suicide victims had thought about, expressed the intention to or actually tried to commit suicide, although none of them had been diagnosed or otherwise identified as having depression. Note that this does not mean that they were not experiencing depression—only that if they were, their depression had gone unacknowledged and untreated. This fact has serious policy implications in the two most critical areas of suicide prevention: widespread, accessible screening and effective care.

We already know that routine early screening is the critical entry point for responding to serious public health problems. Depression ranks among the higher-stakes risks. Early detection for those with MDD (major depressive disorder), a pervasive and persistent form of chronic depression, can have an immediate impact on teen suicide prevention and the lowering of suicide rates over the lifespan of adults². For 12- to 18-year-old adolescents, school-based screening for MDD, just as we screen for vaccinations, hearing and vision deficits, and scoliosis, can make a difference. Medical professionals increasingly conduct depression screening, but this alone will not reach those with health care disparities or who rarely see a medical professional.

Not only can screening be lifesaving for chronic sufferers, but it can be critical as well for those experiencing acute depression or dysthymia triggered by major life stresses, when one's own inner resources can be overwhelmed³. Pregnancy and postpartum depression, being faced with seemingly insurmountable legal or financial problems, confronting the serious illness or death of someone we care for, or our own medical challenges. Any or all of these can at times seriously test one's personal resilience. To be effective as suicide prevention strategies, chronic and acute depression screening and treatment must be accessible, timely, and effective across the broad spectrum of our population.

A worthwhile strategy for ensuring access to mental health care points towards passage of state legislation that meets the relevant requirements of the federal Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008. Such a law will strengthen health insurance coverage parity provisions, ensuring that behavioral health is covered comparably to physical health; it will provide for both acute and chronic care, as well as for effective preventive wellness programs.

This policy action would be a major step forward in suicide prevention. Policy issues addressing mental health parity are especially relevant in any consideration of suicide prevention. For example, the finding that suicide among Native Americans without depression is more common than among those with depression may well be due to a lack of access to screening, diagnosis and treatment for Native Americans compared with other ethnicities. Regardless, mental health parity in Arizona and elsewhere would be a major step towards suicide prevention in the US.

END NOTES

¹ Gold, K. J., Singh, V., Marcus, S. M., & Palladino, C. L. (2012). Mental health, substance use and intimate partner problems among pregnant and postpartum suicide victims in the National Violent Death Reporting System. *General hospital psychiatry*, 34(2), 139-145. Karch, D. L., Logan, J., McDaniel, D. D., Floyd, C. F., & Vagi, K. J. (2013). Precipitating circumstances of suicide among youth aged 10–17 years by sex: data from the National Violent Death Reporting System, 16 states, 2005–2008. *Journal of Adolescent Health*, 53(1), S51-S53.

² Albert L. Siu (2016). Screening for Depression in Children and Adolescents: U.S. Preventive Services Task Force Recommendation Statement. U.S. Preventive Services Task Force.

³ Albert L. Siu (2016). Screening for Depression in Adults US Preventive Services Task Force Recommendation Statement U.S. Preventive Services Task Force.