Characteristics of Montana Suicide Victims

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Abstract

Suicide is one of the leading causes of preventable death. Montana is frequently among the states with the highest suicide rates and in 2014 it had the highest suicide rate in the United States. There is little data available about the characteristics of Montana suicide victims. The purpose of this study was to evaluate risk factors for suicide in Montana. Archival data from the 2014 Montana Suicide Surveillance was evaluated and compared to results of other studies of rural suicide victims. As in other rural locations, the suicide rate standardized per 100,000 population was highest for males, veterans, the divorced, the elderly, American Indians, and those with less than a high school education. The raw, unadjusted number of suicides was highest for persons aged 40 to 64. Suicide rates are lowest for those who are married and have a bachelor's degree or higher. These findings suggest that suicide prevention programs need to be multifaceted and sensitive to the characteristics of different social, cultural, and ethnic groups. In addition, programs designed to help persons complete high school and assist them in attaining a bachelor's degree may help lower suicide rates. Prevention programs targeting the specific age demographic from 40 to 64 have the most potential to lower the overall suicide rate for Montana. More research should be done to compile and evaluate additional years of data to determine whether the risk factors and protective characteristics identified in this study are similar for other years.

Keywords: suicide, rural, suicide prevention, suicide risk factors, Montana

Characteristics of Montana Suicide Victims

Suicide is one of the leading causes of preventable death in Montana and it is a significant public health issue. In 2014, there were 243 suicides in Montana, the highest rate in the nation, with 23.8 suicides per 100,000 population and almost double the national rate of 12.6 per 100,000 people ("Suicide Rates in the United States", 2016).

Gender, age, rural location, substance abuse, significant life events (SLEs), and mental health issues are some factors that correlate with suicide (Hirsch & Cukrowicz, 2016, pp. 65-66; Phillips, et al., 2010, pp. 685- 686). Nationally adults over 65 had the highest suicide rate in 2007 compared to other age groups, with a suicide rate of 14.3 per 100,000. Older adults who commit suicide are predominantly male, with a suicide rate of 29.0 per 100,000 compared to 4.0 per 100,000 for women, and white, with "white men accounting for 8 of 10 suicides in older age" (Kaplan et al., 2012, p. 65).

Rates of suicide vary across age cohorts. Since 1999, suicide rates have increased for middle aged persons (Phillips, 2014, p. 151). Although suicide rates grew for both males and females over this time period, rates of male suicide showed the greatest increase. This change followed a period of decline in suicide rates for males aged 45 to 64. In 1930 this group had a suicide rate of about 60 per 100,000, which fell to 30 per 100,000 in1986 (Phillips, 2014, p. 155). In 1999 persons 45 to 54 had suicide rate of 13.9 per 100,000 that grew to 19.6 per 100,000 in 2010 (Phillips, 2014, p. 151). If the increase in this group continues as it ages, the rates for older persons will show concomitant increases as well.

Most (80%) older male suicide victims use firearms and the use of firearms increases with age (Kaplan, et al., pp. 65 - 66). Factors correlated with use of firearms are having a health problem, living in a rural county location, being a veteran, and residing in the South or Western

parts of the United States. For each increase along the urban-rural continuum, "there was a commensurate and significant rise of 13% in the likelihood of firearm involvement" (Kaplan, 2012, p. 69). The majority of older suicide victims were married, did not have a mental health or substance abuse problem, and did not exhibit previous suicidal behavior (Kaplan, et al., 2012, p. 69).

There is very little evaluation of Montana suicide data despite its high rate and significant public health impact. Analysis may help provide information to structure more effective intervention programs to help prevent suicide. The hypothesis is that Montana suicide risk factors are analogous to those of other rural areas in the United States.

Method

Subjects

Montana Suicide Surveillance archival data from 2014 was used to evaluate characteristics of 243 suicide victims. Data was drawn from county coroner reports that included the following data for each suicide: age, gender, race, educational status, marital status, state of original residence, veteran status, and means of suicide. Other data including body mass index, toxicology analysis, psychiatric and medical diagnoses, and history of previous suicide attempts was included for some, but not all, subjects.

Procedure

Suicide data was analyzed by 5 and 10 year age increments and evaluated for characteristics that were recorded for all or nearly all suicides to determine common characteristics and to identify potential risk factors and protective factors. Suicide data was adjusted to determine the rate per 100,000 population. Raw, unadjusted data was also analyzed to determine the number of suicides by five year age cohort, race, and gender.

Results

In 2014, the Montana suicide rate was 23.8 per 100,000 people. The rate of male suicide was more triple the rate of female suicide. Persons 85 and older had the highest rate at 52.6 followed by 45.0 for persons 40 to 44. Adolescents aged 10 to 14 had the lowest suicide rate. There were no suicides for children aged 10 and younger.

Overall males had higher suicide rates than females with the highest rates for males in the oldest two age cohorts. The female suicide rate exceeded that of males for only one age cohort - adolescents aged 10 to 14. Figures 1, 2, and 3 show the overall suicide rate for Montana as well as suicide rates by five year age cohort and gender.

Persons over 25 who had completed some, but not graduated from, high school had the highest suicide rate while persons who obtained a graduate degree had the lowest rate. Generally, the rate of male suicide declined as the level of education increased. However, for females the suicide rate rose in a linear relationship from some high school through attending some college. Figure 4 shows suicide rates by gender and educational status.

For persons 15 years and older, divorced persons had the highest suicide rate. Widowers had the next highest rate followed by males who were separated. Females who were separated had the lowest suicide rate followed by females who were widowed. Suicide rates by gender and marital status for Montanans 15 and older are shown in Figure 5.

Gunshot was the overwhelming means of suicide for males, while overdose was the most frequent means of suicide for females. Figure 6 shows the suicide rate by gender and means of suicide.

Veterans had a higher suicide rate than non veterans. The rate of male veteran suicide was more than double the rate of female veteran suicide. However, the rate of female veteran

suicide was among the highest rate for all groups of females. Figure 7 shows suicide rates for veterans by gender for Montanans older than 18 years of age.

American Indians had the highest suicide rate by race. Figure 8 shows suicide rates by race.

The total number of suicides by age cohort is shown in Figure 9. Although these numbers are not population adjusted, they give a picture of the age groups with the highest number of suicides. Four of the five age cohorts with the most number of suicides fall between the ages of 40 to 64. There were no suicides for children 10 and younger.

Figure 10 shows the number of suicides by race, gender, and age cohort, which are not population adjusted rates. White males had the highest number of suicides followed by white females.

Discussion

The results support the research hypothesis that the characteristics of Montana suicide victims are analogous to those of other rural areas in the United States. The overall Montana suicide rate exceeds the national rate for the United States, but is closer to the suicide rate of the 10 most rural states as shown in Figure 11 (Montana, Wyoming, Alaska, South Dakota, Utah, Arizona, North Dakota, Nevada, Idaho, and New Mexico). In 2014, the Montana rate was 23.8 suicides per 100,000 population while the rate for the other nine most rural states ranged from 23.1 per 100,000 to 17.0 per 100,000 compared to the national rate of 12.6 per 100,000.

As other studies of suicide factors in rural areas found, Montana suicide rates for males, veterans, and the elderly were higher than the state average and significantly higher than the national average for those groups. Like other studies of rural suicide, rates for American Indians are higher than those of whites and gunshot is the most frequent means of suicide, particularly

for males. Analysis of Montana data showed, as have other studies of rural suicide, that negative life events such as being divorced or widowed are associated with higher rates of suicide compared to persons who are married or single, particularly for males.

These results suggest that stable family situations, attaining higher education levels, and being female may help protect against suicide while being less educated, veteran, male, elderly, or American Indian appear to be risk factors for suicide.

The significantly higher rates of male suicide in Montana are similar to findings of other studies of other rural areas. It may be reflective of a rugged individualist culture and heritage that may discourage males from seeking help or treatment. Additionally Montana is a very sparsely populated state, where many people live in what is classified as frontier communities where there may be few if any mental health or emergency services and the nearest service providers may be hours away.

Suicide prevention must be a multifaceted approach to address the different and potentially unique needs of each group from the elderly to veterans to American Indians. It will be challenging to develop programs that serve sparsely populated, frontier areas that often lack basic, primary care services. Although not traditionally thought of as suicide prevention, these findings suggest that assuring that people graduate from high school and, if possible, complete additional schooling in college may help lower suicide rates.

As other studies have shown, although population adjusted rates for suicide are higher for the elderly, a greater number of persons between the ages of 40 and 64 commit suicide. The high number of suicides in this age group is often overshadowed by media coverage of suicides of young adults, veterans, and Native Indians. Suicide prevention programs aimed at white males

between the ages of 40 and 64 have the potential to lower the overall suicide rate substantially since in 2014 those age cohorts had four of the five highest number of suicides by age.

Only data from 2014 was available for this research. Additional years of data need to be collected and evaluated to determine whether suicide factors and rates among subgroups by gender, age, educational level, marital status, race, and veteran status are consistent from year to year. Some of the population adjusted ratios for 2014 may have little validity because the number of suicides was small and additionally there is a relatively small population in some of the age cohorts. Further work could also be done to determine unique characteristics of persons aged 40 to 64 to determine whether risk factors for those cohorts are the same or different than the risk factors for the Montana population. Additional research could also be done to determine whether significant life events such as physical health issues or the onset of a mental health issue were related to suicide.

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Figures

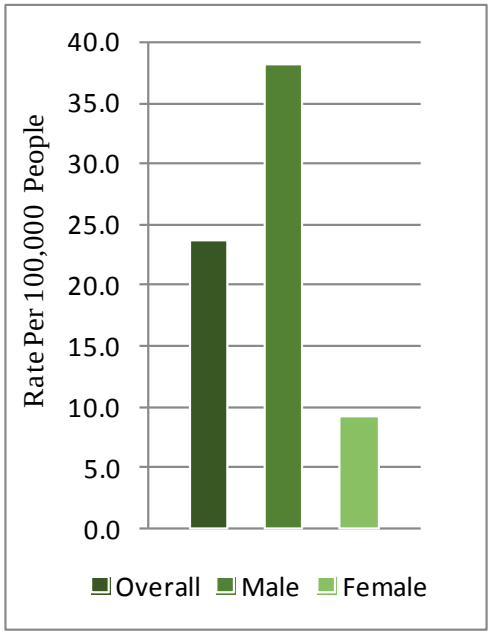

Figure 1: Montana suicide rate overall and by gender for 2014.

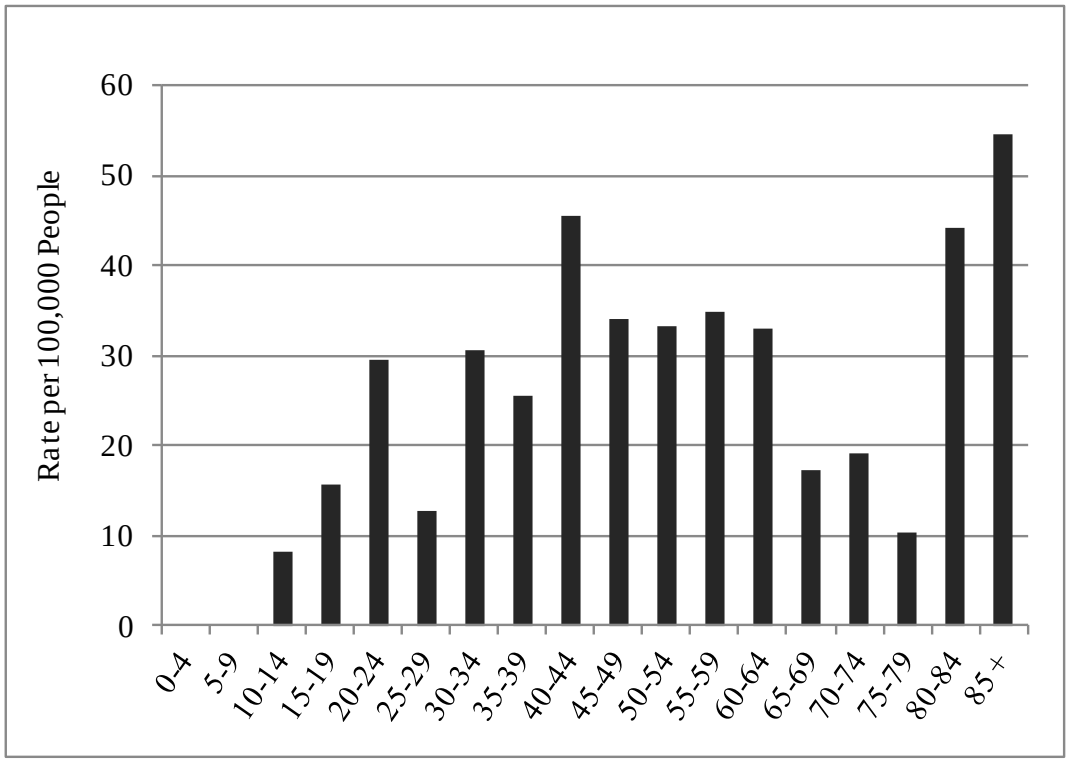

Figure 2: Montana suicide rate per 100,000 people by five year age cohort for 2014.

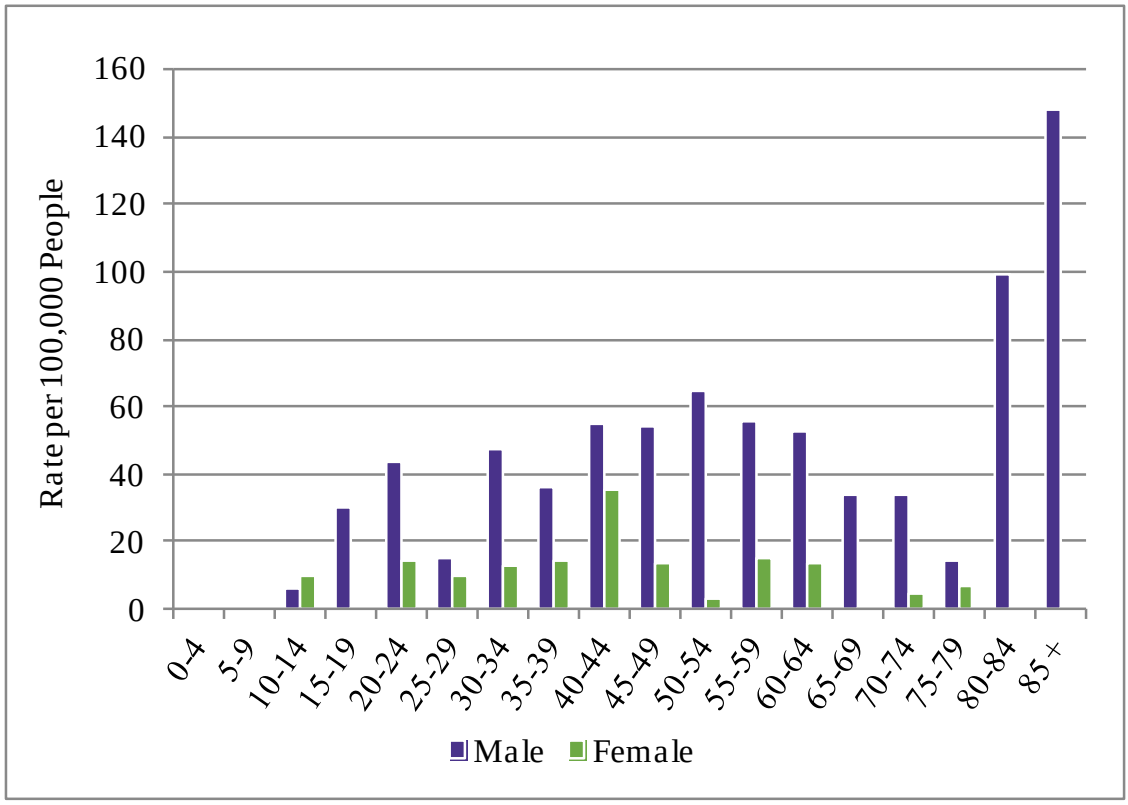

Figure 3: Montana suicide rate per 100,000 people by 5 year age cohort and gender for 2014.

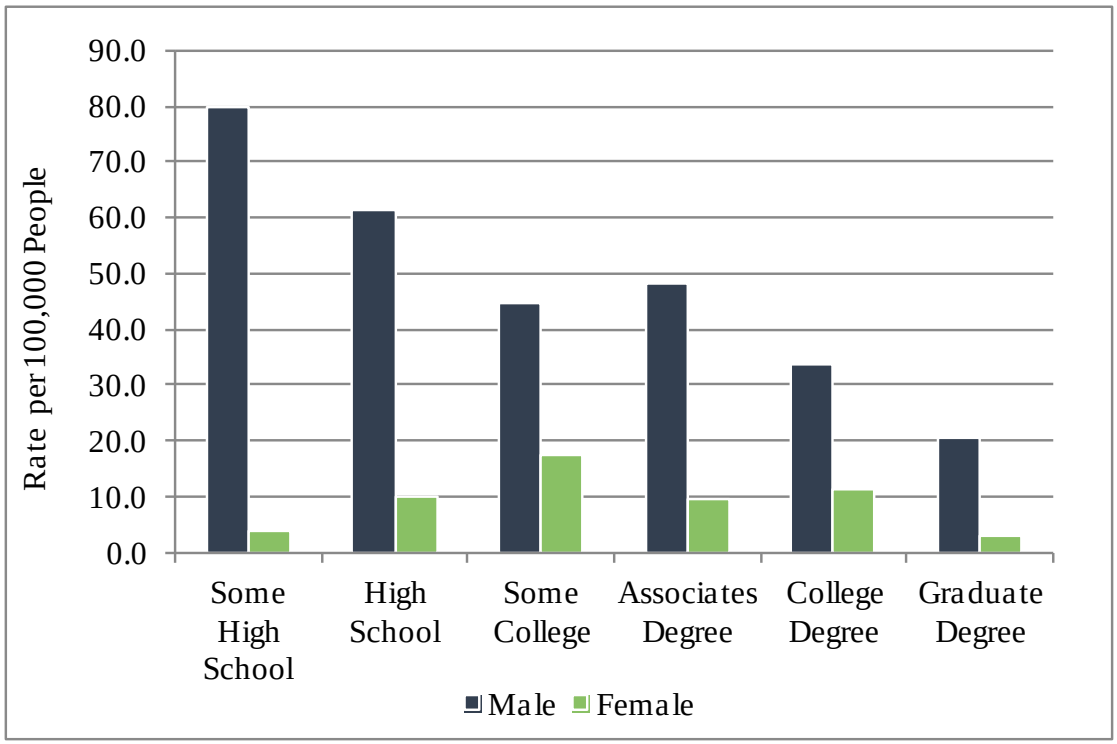

Figure 4: Montana suicide rate per 100,000 people by gender and educational status for 2014 for persons 25 years and older.

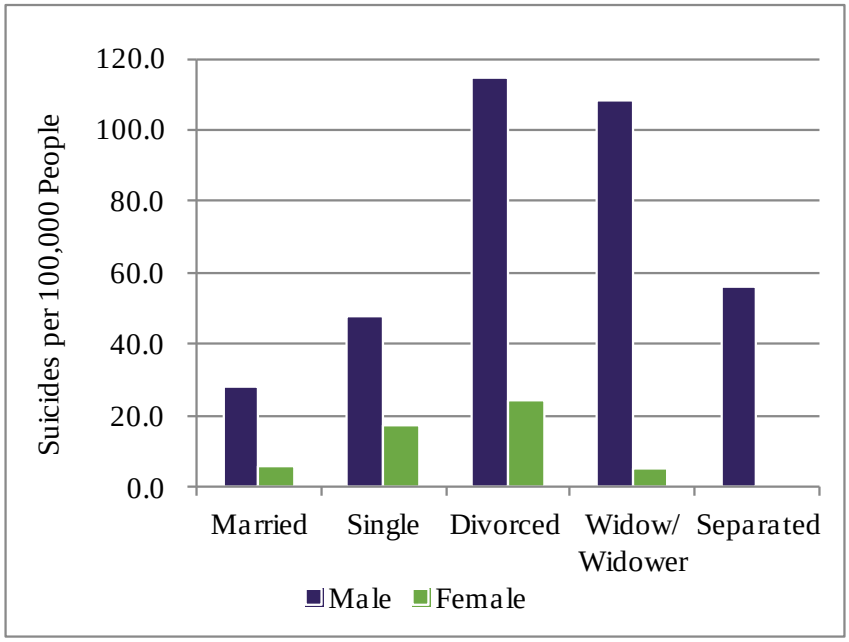

Figure 5: Suicide rate per 100,000 people (15 and older) by gender and marital status for Montana in 2014.

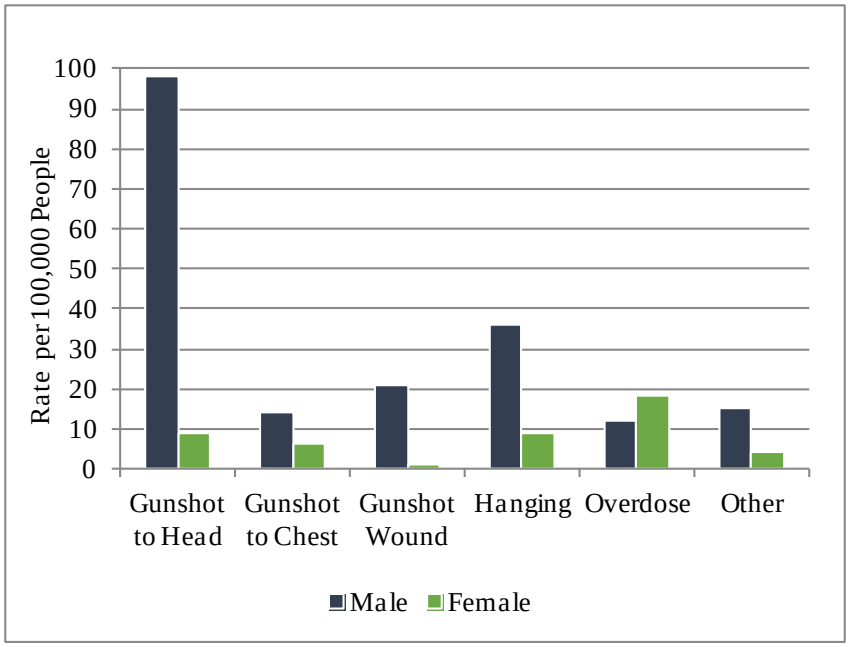

Figure 6: Montana suicide rate per 100,000 people by gender and means of suicide for 2014.

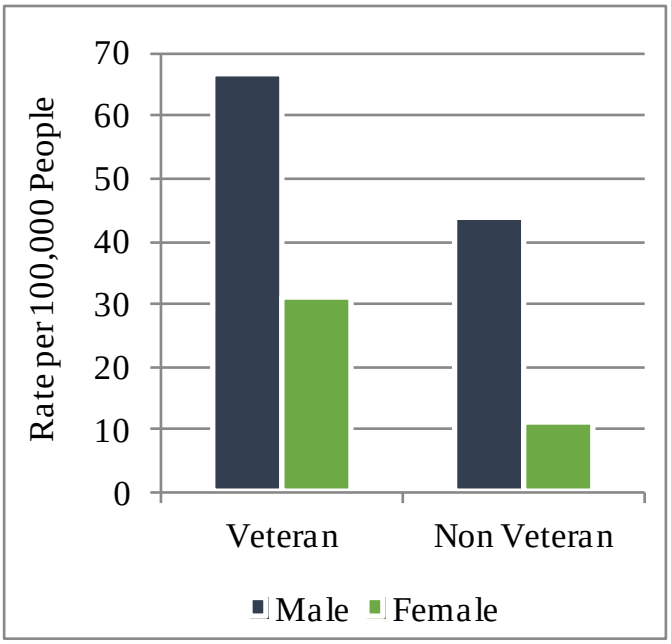

Figure 7: Montana suicide rate per 100,000 people by gender and veteran status for 2014 for persons older than 18 years of age.

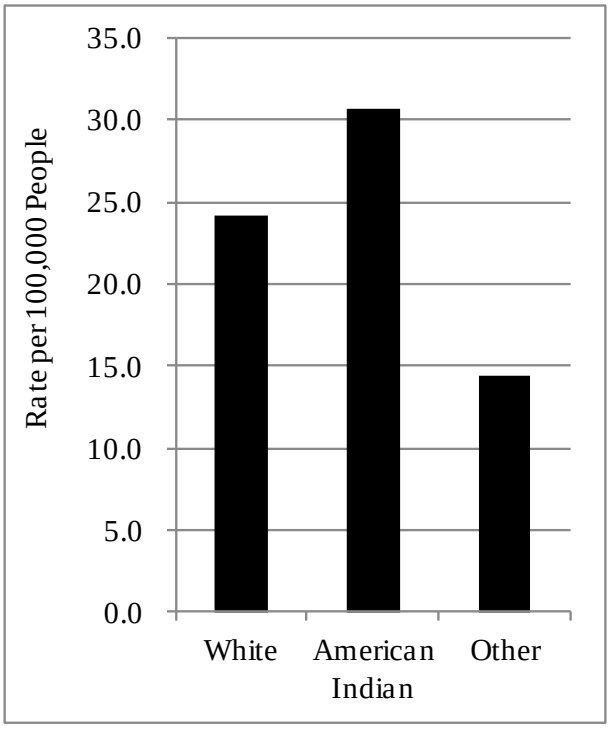

Figure 8: Suicide rate per 100,000 people by race for Montana for 2014.

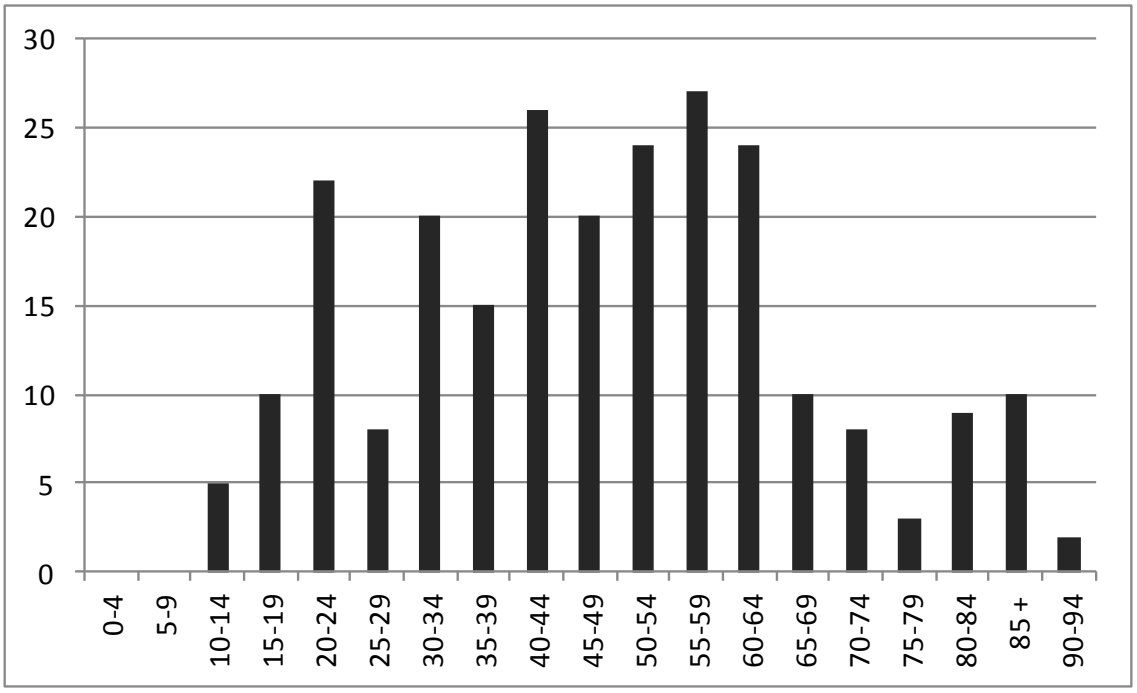

Figure 9: Raw number of suicides by five year age cohort for Montana in 2014 (Montana Suicide Surveillance Data 2014).

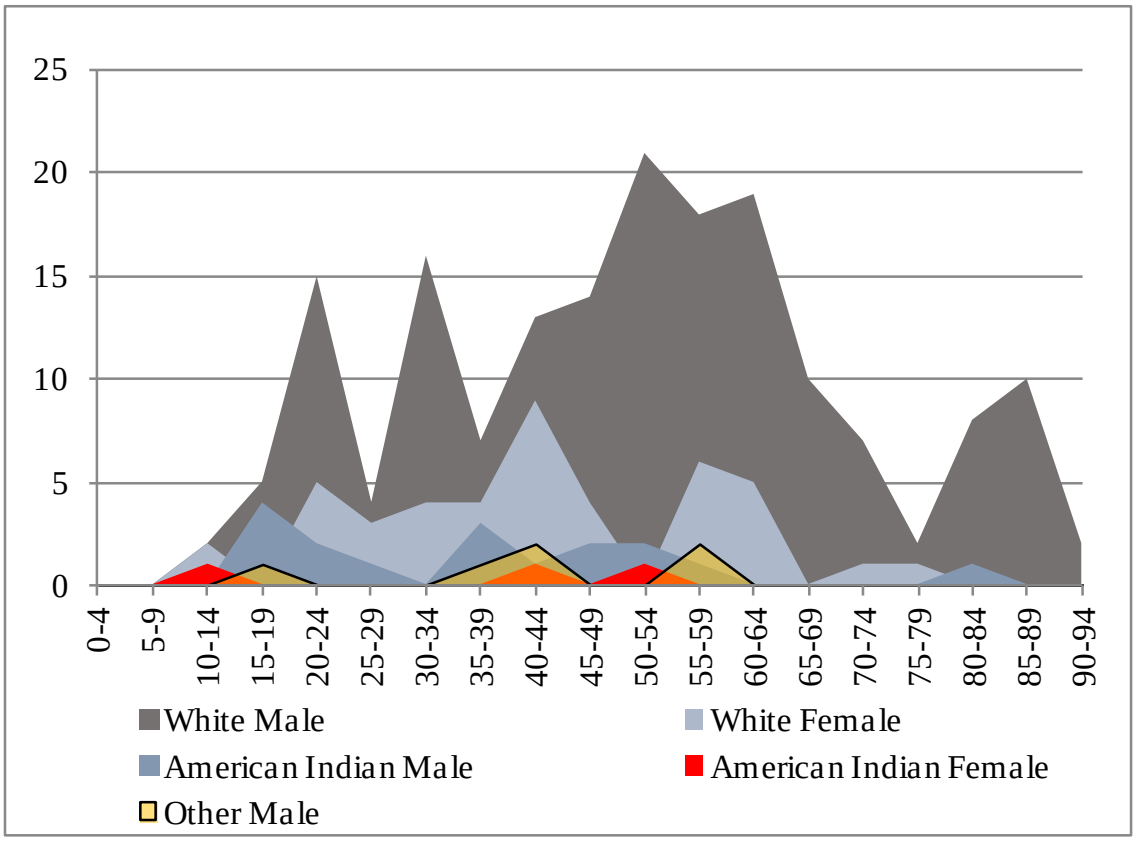

Figure 10: Raw number of suicides by race, gender, and age cohort for Montana in 2014 (Montana Suicide Surveillance Data 2014).

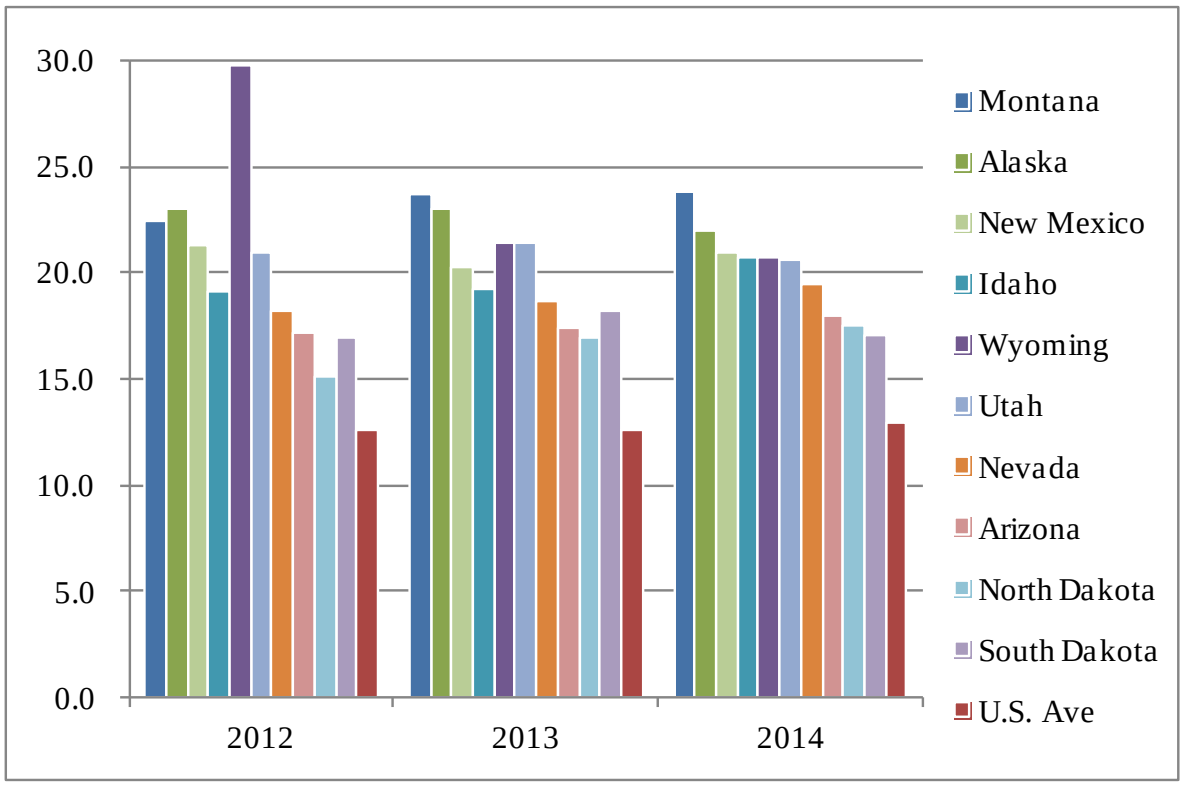

Figure 11: Suicide rate per 100,000 population for the 10 most rural states compared to U.S. average for 2012 - 2014 ("Suicide Rates in the United States", 2016).