

## Suicide Prevention Advertising Exposure and Perceptions of Firearm Safe Storage in a Sample of Wisconsin Veterans

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### Abstract:

**Objective:** This study summarizes results of a survey of veteran and non-veteran Wisconsin residents on their reported exposure to suicide prevention public messages and attitudes about safe storage of firearms.

**Methods:** A 41-item survey was completed by 400 state of Wisconsin residents (Dec. 2021 to Jan. 2022) which asked about: 1) exposure to suicide prevention messaging, 2) perceptions around safe storage of firearms for suicide prevention, 3) current mental health status and current stressors, 4) exposure to suicidal behavior, 5) firearm ownership and firearm storage and 6) demographic information. Comparisons were made between veteran and non-veterans.

**Results:** Overall the results were consistent to previous studies regarding veterans owning more firearms and storing their firearm less securely than non-veterans. Additionally, veterans reported visiting websites, and seeing and hearing more public messages about suicide prevention and firearm safety than non-veterans. Veterans reported that they were less likely to safely storage firearm in the event of a crisis as compared to non-veterans. However, veterans reported that other people should store their firearms more safely than they felt they should.

**Conclusions:** It is interesting that even though veteran might hear and see more messages about suicide prevention and firearm safe storage, that veterans are less likely to safely store their firearms. Even though veteran agree that “others” should safely store firearms, the veteran (“me or I”) does not apply this recommendation to themselves. Recommendations on how public messaging should address the issue that veterans overall agree that firearms should be stored safely in the event of a crisis but they do not see this applying to themselves.

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## Introduction

Suicides are highly prevalent and present a major challenge to public health in the United States and worldwide.<sup>1</sup> Suicide rates have increased by nearly one-third in the United States from 1999 to 2020 and suicide was the 10th leading cause of death. In 2020, suicide was the 13th leading cause of death among Veterans overall, and it was the second leading cause of death among Veterans under age 45.<sup>1</sup> From 2001 through 2020, age and sex adjusted suicide rates rose faster for Veterans than for non-Veteran U.S. adults.<sup>2</sup> The difference in rates was greatest in 2017, when Veteran adjusted rates were 66.2% greater than those of non-Veteran adults. In 2020, the age and sex adjusted suicide rate for Veterans was 57.3% higher than the rate for non-Veteran adults.<sup>2</sup> The suicide rate among Wisconsin Veterans has also been increasing over the past 20 years and in 2017, accounting for age differences, the rate was significantly higher than the national Veteran suicide rate, the national suicide rate, and the overall Wisconsin suicide rate.<sup>3</sup> This constitutes a gross overrepresentation with veterans accounting for 13.7% of overall suicides despite the fact that only about 7% of adults in the United States are veterans.

There are several risk factors for suicide which are different for Veterans than for non-Veterans. Veterans who die by suicide are more likely to use a firearm, to have physical health problems, and to have experienced a recent death of a friend or family member.<sup>4</sup> Research has shown that having access to lethal means is an important determinate in suicidal behavior. In fact, the presence of a firearm in the home increases the risk for suicide for all members of the household.<sup>5-7</sup> In a study of the association between firearm ownership and suicide, it was found that firearm ownership predicted statewide overall suicide rates.<sup>8</sup> Half of all suicides, and about 70% of all veteran suicides, involve the use of firearms.<sup>2</sup> This risk is relevant for an estimated one-third of all American households that keep firearms in their home.<sup>9</sup> A recent survey of individuals who did and did not purchase a firearm found that those who purchased a firearm as result of and during the COVID-19 pandemic, 39.7% reported at least one firearm unlocked.<sup>10</sup> Despite this, restricting access to firearms for suicide prevention through overarching policy or legal means in the United States is exceedingly difficult,<sup>11</sup> even though both firearm and non-firearm owners support a wide range of restriction on firearms.<sup>12</sup> It is well established in the literature that reducing access to suicide methods is an essential part of suicide prevention programs.<sup>13</sup> Therefore, a potential method to reduce firearm access is through self-restriction via safe/secure storage in the home or storing firearms outside of the home.<sup>14</sup>

There is a link between safe storage of firearms and risk for suicide. In a sample of 300 adults living in the US who own at least one firearm, respondents that stored their firearms in non-secure locations and without a locking device (e.g., trigger lock) demonstrated significantly lower endorsement of the relationship between firearm storage and suicide risk.<sup>15</sup> Fearlessness about death moderated the association between current secure versus non-secure storage and beliefs regarding firearm storage and suicide risk, in that storage practices and beliefs were more strongly related at higher levels of fearlessness about death. A study by Cleveland, et. al.,<sup>16</sup> found that about 45% of veterans own one or more firearms (44.9%, 95% CI 41.3–48.6%), with male veterans more commonly owning firearms than do female veterans (47.2%, 95% CI 43.4–51.0% versus 24.4%, 95%CI 15.6–36.1%). Most veteran firearm owners own both handguns and long guns (56.5%, 95% CI 51.1–61.8%); a majority cite protection as a primary reason for firearm ownership (63.1%, 95% CI 58.2–67.8%). Another study of firearm storage practices among a nationally representative sample of U.S. Veteran firearm owners (data analyzed in 2017; 54.6% response rate), found that one in three (33.3%, 95% CI=28.6%, 38.4%) Veteran firearm owners store at least one firearm loaded and unlocked.<sup>17</sup> In the context of behavior around suicide,

these findings are concerning, as prominent suicide theories, such as Joiner's Interpersonal-Psychological Theory of Suicidal Behavior, list capability to die as a key component of suicidal behavior<sup>4</sup> It is quite apparent that readily available access to firearms provides the most capable and common method of suicide in the United States.

Studies also suggest that suicide prevention initiatives among Veterans should incorporate communication strategies that address common misperceptions about household firearm risk and whether safe storage practices may better align with reasons most Veterans own firearms (i.e., safety); especially when someone in their home is at increased risk for suicide.<sup>18</sup>

The current study seeks to add to the broader literature about firearm storage practices by conducting a statewide survey of veterans and non-veterans prior to the implementation of a statewide mass media campaign focusing on safe storage practices. Our 41-item survey asked participants about: 1) exposure to suicide prevention messaging, 2) perceptions around safe storage of firearms for suicide prevention, 3) current mental health status and current stressors, 4) exposure to suicidal behavior, 5) firearm ownership and firearm storage and 6) demographic information. The primary research question guiding this study is, how do firearm storage practices differ between veterans and non-veterans? This baseline study will allow for comparison after the implementation of mass media messaging that promotes safe storage of firearms in the context of suicide prevention.

## **Methods**

Our study electronically surveyed adults living in the State of Wisconsin during COVID-19, between November and December 2021, using two email groups accessed through the Qualtrics survey system. Our first survey distribution used an email list of 60,000 adults living in Wisconsin from an email marketing firm. Participants were offered a \$10.00 gift card to complete the survey and were given two separate reminders after three days from the original invitation. There was a total of 150 respondents, with the sample showing a higher percentage of rural and white respondents than expected based upon population statistics. The sample was supplemented in January 2022 with another 307 participants from an incentivized email panel from Qualtrics using all Wisconsin zip codes. The final sample was integrated into the final sample to obtain a close representation of the state's population (see Table 1).

## **Results**

400 individuals participated in the survey after removing outlier data and erroneous surveys with 151 respondents were veterans, while 306 were non-veterans. The average age of survey respondents was 50 years, which is higher than the Wisconsin population's average age of 39 years. Full demographic information is included in Table 1.

Table 1: Participant Demographic Information		
	Veterans (n=122)	Non-Veterans (n=278)
<b>Sex</b>		
Male	98 (80%)	81 (29%)
Female	24 (20%)	197 (71%)
Intersex	0	0
<b>Gender</b>		
Male	98 (80%)	80 (29%)
Female	24 (20%)	194 (70%)
Transgender woman	0	0
Transgender male	0	2 (1%)
Non-binary	0	1 (0.4%)
Other	0	1 (0.4%)
<b>Age</b>		
Average age	56 years	47 years
<b>Race</b>		
White	114 (93%)	248 (89%)
Black	4 (3%)	16 (6%)
Native American	1 (0.8%)	1 (0.4%)
Asian/Pacific Islander	2 (2%)	4 (1%)
Biracial	0	4 (1%)
Other	1 (0.8%)	5 (2%)
<b>Marital Status</b>		
Married	86 (70%)	138 (50%)
Single	17 (14%)	83 (30%)
Divorced	13 (11%)	23 (8%)
Widowed	2 (2%)	10 (4%)
Committed Relationship	4 (3%)	24 (9%)
Other	0	0
<b>Employment Status</b>		
Working	55 (45%)	152 (55%)
Unemployed	6 (5%)	38 (14%)
At risk of unemployment	1 (0.8%)	0
Retired	51 (42%)	70 (25%)
Disabled	8 (7%)	11 (4%)
Prefer not to answer	1 (0.8%)	7 (3%)

Chi-square tests were run to assess the unadjusted association between survey responses and veteran status. Fully adjusted analyses were conducted, adjusting for demographic variables including sex, age, and race. All statistical analyses were conducted using Stata Statistical Software version 17.<sup>19</sup>

**Reported exposure to crisis line and/or suicide prevention messaging.** The results, as shown in Table 2, indicate that most Wisconsin citizens have been exposed to advertising about suicide prevention, but Veterans report even more exposure to this messaging. More Veterans have seen or heard public

messaging about veterans and suicide prevention in the prior past year (88%) than non-veterans (62%). In addition, more Veterans (81%) have seen or heard public messaging about **suicide prevention and crisis intervention lines** in the past year than non-Veterans (75%). More Veterans have seen or heard public messaging **promoting firearm safe storage and suicide prevention** in the prior past year (43%) than non-Veterans (36%). Additionally, more veterans (50%) have visited websites related to these topics more than non-Veterans (32%), potentially indicating more awareness of and concern about suicide among veterans.

	<b>Veterans (n=122)</b>	<b>Non-Veterans (n=278)</b>
Have seen or heard advertising about <b>mental health or suicide prevention crisis lines</b> in the past year	99 (81%)	208 (75%)
Have seen or heard advertising about <b>veterans and suicide prevention</b> in the past year	107 (88%)	172 (62%)
Have seen or heard advertising promoting <b>safe storage of firearms for suicide prevention</b> in the past year	52 (43%)	99 (36%)
Have visited <b>websites</b> related to topics around <b>safe storage of firearms and suicide prevention</b>	59 (49%)	89 (32%)

**Exposure to Suicidal Behavior.** Most survey respondents have been exposed to suicidal behavior (e.g., their own or someone else’s suicide attempt or someone else’s death by suicide, See table 3). A higher percentage of Veterans have experienced suicide thoughts (36%) and have known someone that attempted suicide (60%) than non-Veterans (33%, 57% respectively). At the same time, a higher percentage of non-veterans know someone who had suicidal thoughts (70%) and someone who died by suicide (61%) than veterans (68% and 57% respectively), whereas the same percentage of Veterans and non-veterans (11%) have attempted suicide.

Table 3: Exposure to Suicidal Behavior		
	<b>Veterans (n=122)</b>	<b>Non-Veterans (n=278)</b>
I know someone who has experienced suicidal thoughts.		
Yes	83 (68%)	194 (70%)
No	35 (30%)	76 (27%)
Prefer not to answer	3 (2%)	7 (3%)
I know someone who attempted suicide.		
Yes	73 (60%)	160 (57%)
No	47 (39%)	113 (41%)
Prefer not to answer	2 (1%)	5 (2%)
I know someone who died by suicide.		
Yes	69 (57%)	169 (61%)
No	51 (42%)	101 (36%)
Prefer not to answer	2 (1%)	8 (3%)
I have experienced suicidal thoughts.		
Yes	44 (36%)	92 (33%)
No	67 (55%)	172 (62%)
Prefer not to answer	11 (9%)	13 (5%)
I have attempted suicide.		
Yes	13 (11%)	32 (11%)
No	103 (84%)	241 (87%)
Prefer not to answer	6 (5%)	5 (2%)

**Firearm Ownership and Storage.** There are significant differences in firearm ownership between veterans and non-veterans in Wisconsin. More Veterans (67%) own at least one firearm versus 41% of non-Veterans (see Table 4). Veterans also own (3) more firearms than non-veterans (1), while this difference was not significant.

More veterans (33%) report storing at least one firearm loaded and unlocked, whereas only 16% of non-Veterans store a firearm loaded and unlocked. Otherwise, veterans and non-veterans demonstrate similar behavior regarding storing unloaded firearms, locked/loaded firearms and storing firearms outside of the home.

Table 4: Firearm Ownership and Storage		
	<b>Veterans (n=122)</b>	<b>Non-Veterans (n=278)</b>
Mean number of firearms owned	3	1
I have ammunition in my home.	<i>n=81</i>	<i>n=104</i>
Yes	71 (87%)	87 (84%)
No	10 (13%)	17 (16%)
I store at least one firearm <b>loaded and unlocked.</b>	<i>n=81</i>	<i>n=104</i>
Yes	42 (52%)	14 (13%)
No	39 (48%)	90 (87%)
I store at least one firearm <b>unloaded and unlocked.</b>	<i>n=81</i>	<i>n=104</i>

Yes	51 (50%)	35 (34%)
No	50 (50%)	69 (66%)
I store at least one firearm <b>loaded and locked in a case, safe, or with a trigger/cable lock.</b>	<i>n=81</i>	<i>n=104</i>
Yes	20 (25%)	26 (25%)
No	61 (75%)	78 (75%)
I store at least one firearm <b>unloaded and locked in a case, safe, or with a trigger/cable lock.</b>	<i>n=81</i>	<i>n=104</i>
Yes	34 (42%)	56 (54%)
No	47 (58%)	48 (46%)
I store at least one firearm <b>outside my home.</b>	<i>n=81</i>	<i>n=104</i>
Yes	12 (15%)	9 (9%)
No	69 (85%)	95 (91%)

**Firearm storage when in a suicidal crisis.** Most veterans 88% and non-veterans 89% agree that “**people**” should lock their firearms **at home** if they are experiencing a mental health or suicide crisis. However, when asked if “**I**” were in a mental health or suicide crisis only **61%** of veterans and **69%** of non-veterans agree that they should lock up their firearms (if they had or have firearms). Veterans (66%) agree that it is a *good idea* to have firearms stored **outside** of the home, but a higher percentage of non-veterans (82%) agree to this question. Again, more non-veterans (75%) agreed than veterans (69%) that “**people**” *should* store their firearms outside of the home if they are experiencing a mental health or suicide crisis. However, when respondents were asked if “**I**” were in a mental health or suicide crisis, Veterans (53%) were less likely to agree to this as compared to non-veterans (71%) would agree to store their firearms outside of the home (if they had or have firearms). On the question of whether people should have firearms *removed* from the home when someone is experiencing a mental health or suicide crisis, more non-veterans (69%) agree to this than veterans (54%).

Table 5: Firearm storage when in a suicidal crisis		
	Veterans (n=122)	Non-Veterans (n=278)
If I was in a mental health or suicide crisis and had (or have) firearms, I would <b>lock up</b> the firearms <b>at home</b> . Agree Unsure Disagree	74 (61%) 31 (25%) 17 (14%)	192 (69%) 42 (15%) 44 (16%)
If I was in a mental health or suicide crisis and had (or have) firearms, I would <b>store the firearms outside the home</b> . Agree Unsure Disagree	65 (53%) 30 (25%) 27 (22%)	196 (70%) 58 (21%) 23 (9%)
People should <b>lock their firearms</b> in their home when someone is experiencing a mental health or suicide crisis. Agree Unsure Disagree	107 (88%) 11 (9%) 4 (3%)	248 (89%) 16 (6%) 14 (5%)
People should <b>temporarily store firearms outside of the home</b> when someone is experiencing a mental health or suicide crisis. Agree Unsure Disagree Did not answer	85 (71%) 19 (16%) 15 (13%) 0	210 (77%) 35 (13%) 29 (11%) 4 (1%)
People should have <b>firearms removed from the home</b> when someone is experiencing a mental health or suicide crisis. Agree Unsure Disagree	65 (53%) 24 (20%) 33 (27%)	194 (70%) 52 (19%) 32 (11%)
It is a good idea to <b>store firearms outside the home</b> when someone is experiencing a mental health or suicide crisis. Agree Unsure Disagree Did not answer	81 (66%) 20 (17%) 18 (15%) 3 (2%)	227 (82%) 28 (10%) 21 (8%) 2 (0.8%)

## Discussion

Our findings are consistent with other studies which have found that veterans are more likely to own at least one firearm, to own more firearms and to be less likely to store firearms unloaded and locked than non-veterans. Importantly, veterans are more likely than non-veterans to store firearms unlocked and loaded, which can increase risk for firearm suicide.<sup>20</sup>



Generally, most respondents agreed that when there is a mental health or suicide crisis that it is a good idea for “people” to lock up firearms at home or to store them outside the home. However, when asked about themselves (using the “I” statement), there is much less agreement with regard to locking up or storing firearms outside of the home. Veterans are even less likely to agree to safer storage options during a crisis than non-veterans when the question pertains to them or personally affects them. This is similar to the Solomon’s Paradox phenomenon which states how individuals will give “good advice” for others but not take their own advice.<sup>21,22</sup> Additionally, Orvell, Kross & Gelman<sup>23</sup> found that the use of the “generic you” was associated with higher levels of psychological distance. These concepts should be critical considerations for public messaging around safe storage. The challenge for messaging interventions is to consider messaging as if they were in the crisis so that individuals apply safe storage beliefs to their own context when they themselves experience thoughts of suicide. Encouraging veterans to imagine themselves as observers of their own lives – looking at their situation as they would view a situation of a friend – might help them apply their wisdom to their own situation. Messaging in this vein might be helpful to encourage safer storage behaviors among veterans.

More veterans report hearing or seeing advertising about suicide prevention than non-Veterans, but the veteran suicide rate continues to be higher than the rate among non-veterans. It is possible that veterans are more aware of suicide advertising targeting the Veteran population, but there may be a disconnect between the information provided through messaging and actual behavioral change. This may be because the messaging was not specifically tailored to veterans, or the message itself is not compelling enough to drive behavioral change. The type of advertising, the message itself, and messenger are all important components to be considered for successful social marketing that drives behavior change.<sup>24</sup> In tailoring messaging to veterans, studies suggest that veterans may best respond to messaging delivered by fellow veterans (peer to peer) as well as emotionally charged messaging, while not responding well to messaging which tells them to “do the right” thing.<sup>25</sup> These are critical considerations for future messaging.

This study is limited in that it reflects the opinions and experiences of individuals in only one state. Residents of Wisconsin and other midwestern states may have their own unique attitudes regarding firearm ownership and safe storage of firearms. However, understanding the experiences of residents of a state with relatively high firearm access is important, as these residents have more exposure to lethal means than individuals living in states with lower firearm access. The study’s sample was also more female and older than the general Wisconsin population. We adjusted for sex in our fully adjusted model which will account for these differences. However, future survey studies could oversample younger males to gain this important perspective.

## **Conclusion**

Accessible firearm access (more firearms and less securely stored firearms) is likely to be a factor contributing to the higher incidence rate of firearm suicides among veterans. The challenges faced by the VA and researchers is to find and develop interventions, public messaging, innovative programs and other supports encourage veterans who are in a crisis to decrease their access to firearms. This study provides useful information that can help develop, refine and focus public messaging announcements related to safe storage of firearms. Together with policy, systems, and environmental interventions, public message announcements will hopefully help reduce veteran firearm suicides.

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