



## An examination of preferred messengers on firearm safety for suicide prevention

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### ABSTRACT

This study sought to determine differences in preferred messengers on the topic of safe firearm storage and suicide prevention between firearm owners and non-firearm owners, and among firearm owners of different racial groups and sexes. Participants were 6200 United States residents recruited via Qualtrics Panels to complete an online survey. Data were collected during March 2020. The total sample and all subsamples ranked law enforcement, current military personnel, and military veterans as the top three most credible sources to discuss firearm safety for suicide prevention. Significant differences existed among the mean ranking of sources between firearm owners and non-firearm owners as well as between several subgroups of firearm owners. The identical ranking of the top three sources indicates that these groups agree on the relative credibility of multiple sources, although the average level of credibility for particular sources may vary. These findings highlight that the effectiveness of messaging on safe firearm storage may hinge on the identity of the individual delivering the message and provide an initial roadmap for how to consider packaging specific messages.

### 1. An examination of preferred messengers on firearm safety for suicide prevention

Firearms account for half of all suicide deaths and suicides account for nearly two-thirds of all firearm deaths in the United States (US) (Centers for Disease Control and Prevention, 2020). Suicide thus comprises a substantial portion of the burden of gun violence. This point is reflected by research indicating the risk for suicide mortality increases by 300% (Simon, 2007) when a firearm is present in the home and that firearm access is associated with suicide death above and beyond a litany of other risk factors, including but not limited to demographics, psychopathology, and access to mental health care (Anestis and Houtsma, 2018; Miller et al., 2013; Miller et al., 2007).

Evidence suggests that means safety – efforts to make methods for suicide less deadly or less available – is an effective tool for prompting substantial and sustainable reductions in local suicide rates (Barber and Miller, 2014; Sarchiapone et al., 2011; Diagle, 2005). With respect to firearms, means safety approaches include legislation regulating access to firearms as well as non-legislative campaigns aimed at promoting safe firearm storage in the home and voluntary storage away from home during times of stress (Anestis and Anestis, 2015; Swanson et al., 2016; Vrinotis et al., 2015). Evidence on the effectiveness of each of these

approaches remains limited; however, results appear promising (Kivisto and Phalen, 2018; Miller et al., 2020; Rowhani-Rahbar et al., 2016). Broad implementation of these suicide prevention efforts nonetheless remains limited.

Several studies have demonstrated that many firearm owners store their firearms unsafely (Brent et al., 1991; Simonetti et al., 2019). Some have noted that, although firearm owners are no more likely than non-firearm owners to experience suicidal ideation, firearm owners with suicidal ideation are more likely to store their firearms unsafely (Bryan et al., 2019). In this sense, those most in need of means safety may be least likely to embrace it.

One potential explanation for the lack of broad implementation of means safety may be lack of knowledge regarding the data on firearms and suicide. Indeed, prior research has demonstrated that many firearm owners believe there is little or no relationship between suicide risk and firearm access or storage and that those who endorse such beliefs tend to store their firearms less safely and be less willing to change their storage methods to prevent suicide (Anestis et al., 2018).

The inconsistent implementation of means safety may also reflect a lack of effective messaging. Several collaborations between suicide researchers and the firearm owning community have been developed to create a more collaborative environment that may facilitate shifts in

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cultural norms (Barber et al., 2017). Data on the efficacy of these collaborations in prompting behavior change and preventing suicide are lacking; however, the efforts nonetheless represent a paradigm shift towards effective communication and community engagement. A vital step in effectively promoting the message of means safety involves establishing more clearly who the target audience would trust to convey this information.

Along these lines, Crifasi and colleagues (Crifasi et al., 2018) asked a sample of 1444 American firearm owners how good of a fit several potential messengers would be with respect to discussing safe firearm storage. The authors found that law enforcement (77%), hunting or outdoor organizations (73%), active duty military (73%), military veterans (72%), and the National Rifle Association (71%) were the groups most frequently rated as “excellent” or “good” options for this role, whereas physicians (19%) and celebrities (11%) were the least favored. These results provide a preliminary glimpse at potentially effective messengers; however, several questions remain unanswered. First, the Crifasi et al.<sup>20</sup> study did not specify that safe storage would be discussed as a suicide prevention tool. Second, although the study captured the perspective of a national sample of firearm owners, it is not clear to what extent the perspective of firearm owners differs from that of non-firearm owners. Concerns remain that much of the material produced regarding firearm suicide prevention has been developed by non-firearm owners. If their preferences for messengers differ from those of firearm owners, this may result in the development of ineffective messages voiced by ineffective messengers. Lastly, although the findings from Crifasi and colleagues (Crifasi et al., 2018) provide a valuable glimpse at preferences among firearm owners, they do not allow for an understanding of any variability in those preferences based on potentially meaningful individual differences (e.g. race, sex). It may be that different communities of firearm owners exhibit different preferences and, as such, different messages and messengers are needed depending upon who individuals are trying to reach.

In an effort to address these gaps, we collected data from a large national sample that included both firearm owners and non-firearm owners. Individuals were randomized to one of three conditions, each of which involved ranking the same set of potential messengers as in the study by Crifasi and colleagues (Crifasi et al., 2018) but with each condition varying on the type of firearm death being addressed (suicide, homicide, or unintentional shootings). We then assessed differences in preferred messengers on the topic of safe firearm storage for suicide prevention between (1) firearm owners and non-firearm owners and (2) firearm owners of different racial groups, sexes, ages, military experience, and firearm storage practices. Lastly, within the full sample we conducted exploratory analyses examining preferred messengers on firearm storage for homicide and unintentional death prevention in order to determine if the general pattern of results remains similar regardless of the form of gun violence prevention effort focused on within the message. We anticipated the overall sample would exhibit similar preferences to those endorsed in Crifasi and colleagues, with law enforcement and those with current or past military affiliation being ranked as the most preferred and physicians and celebrities being ranked as the least preferred messengers. Given the lack of precedent for our subgroup analyses, we did not put forth a priori hypotheses; however, we anticipated that preferences would differ between firearm owners and non-firearm owners, between male and female firearm owners, between White and Black firearm owners, between firearm owners of varying ages, between firearm owners with and without military experience, and between firearm owners with varying storage practices. Results consistent with these expectations would provide additional evidence regarding potentially valuable messengers for firearm suicide prevention and would also provide guidance for methods by which to create messages that would resonate particularly well with specific subgroups of firearm owners.

## 2. Method

### 2.1. Participants and procedures

Participants included 6200 U.S. residents who were recruited via Qualtrics Panels, an online survey platform that maintains a database of several million U.S. residents who have volunteered to participate in survey-based studies. A total of 10,368 individuals were contacted, with a participation rate of 59.8%. Qualtrics Panels and other commercial survey panel providers have been increasingly used by researchers to recruit general population samples for health-related studies (DeVylder et al., 2018). Quota sampling methods were employed to identify and enroll a sample that was demographically matched to 2010 census distributions for age, sex, and race/ethnicity. Panel members received an email invitation to participate in this study. Within the email body was an embedded hyperlink that redirected panel members to the study's landing page, which contained information about the study. Consent was provided by checking a box indicating such, which enabled the panel member to proceed to the study itself. Firearm ownership was assessed with a single item asking “do you currently have a firearm in or around your home?” After completing the study, participants received compensation in the form and amount that was agreed upon at the time of joining the survey panel. The only inclusion criterion was being 18 years of age or older. Procedures were reviewed and approved by the University of Utah's Institutional Review Board.

### 2.2. Exposures

Following completion of all other self-report items included in this study, participants were presented with the following stimulus: “Listed below are 14 different types of individuals and groups who could teach firearm owners about safe firearm storage for the purposes of [suicide / homicide / accident] prevention. Who do you think would be the best and worst messengers or teachers?” Participants were randomly assigned to either suicide, homicide, or accident prevention. Participants were directed to rank order the 14 options in their preferred order, with the #1 position indicating the person or group that they believed to be best and the #14 position indicating the person or group that they believed to be worst. Participants were allowed to grab and drag each option to sort in the preferred order, with the #1 option (best) located at the top of the list and the #14 option (worst) located at the bottom of the list.

## 3. Results

Descriptive data are available in Table 1. Geographic distribution of the sample can be found in Fig. 1. Quota sampling methods were largely successful in yielding a sample matched to 2010 Census data. With respect to sex, 49.0% of our sample was male and 51.0% of our sample was female (vs 49.1% and 50.9% respectively in the Census). Our sample had a somewhat smaller percentage of individuals aged 18 to 24 (10.4% vs 13.1%) and somewhat higher percentage of individuals aged 25–44 (40.8% vs 35.0%). Our sample also had a lower percentage of individuals who self-identified as White (65.2% vs 75.1%), a higher percentage who identified as Asian (13.9% vs 3.6%), and a higher percentage who identified as American Indian or Alaska Native (4.6% vs 0.9%) relative to the Census. Lastly, our sample had a somewhat higher percentage of individuals who endorsed Hispanic/Latino ethnicity (14.8% vs 12.5%) relative to the Census.

### 3.1. Messenger preference rankings within the full sample

Within the full sample, law enforcement (4.55), current military personnel (5.47), and military veterans (5.53) were rated as the most preferable messengers whereas celebrities (10.96), casual acquaintances (9.92), and physicians or medical professionals (9.01) were rated as the

**Table 1**  
Sample characteristics

	Full Sample	Suicide Message Subsample
<b>Race</b>		
<i>American Indian/Alaskan Native</i>	288 (4.6%)	103 (5.2%)
<i>Asian</i>	861 (13.9%)	280 (14.1%)
<i>Black/African American</i>	770 (12.4%)	241 (12.1%)
<i>Native Hawaiian/Other Pacific Islander</i>	62 (1.0%)	16 (0.8%)
<i>White</i>	4,041 (65.2%)	1,302 (65.5%)
<i>Other</i>	448 (7.2%)	134 (6.7%)
<b>Ethnicity</b>		
<i>Hispanic/Latinx</i>	919 (14.8%)	288 (14.5%)
<i>Not Hispanic/Latinx</i>	5,281 (85.2%)	1,701 (85.5%)
<b>Sex at Birth</b>		
<i>Male</i>	3,038 (49.0%)	981 (49.3%)
<i>Female</i>	3,162 (51.0%)	1,008 (50.7%)
<b>Gender Identity</b>		
<i>Male</i>	3,019 (48.7%)	975 (49.0%)
<i>Female</i>	3,150 (50.8%)	1,005 (50.5%)
<i>Transgender</i>	16 (0.3%)	3 (0.2%)
<i>Non-Binary</i>	15 (0.2%)	6 (0.3%)
<b>Education</b>		
<i>Less than High School</i>	121 (2.0%)	32 (1.6%)
<i>High School Diploma or Equivalent</i>	2,418 (39.0%)	782 (39.3%)
<i>Associate's Degree</i>	1,305 (21.0%)	418 (21.0%)
<i>Bachelor's Degree</i>	1,460 (23.5%)	474 (23.8%)
<i>Master's Degree</i>	734 (11.8%)	232 (11.7%)
<i>Doctoral/Professional Degree</i>	162 (2.6%)	51 (2.6%)
<b>Annual Household Income</b>		
<i>\$0-\$19,999</i>	916 (14.8%)	293 (14.7%)
<i>\$20,000-\$39,999</i>	1,099 (17.7%)	351 (17.6%)
<i>\$40,000-\$59,999</i>	1,104 (17.8%)	355 (17.9%)
<i>\$60,000-\$79,999</i>	829 (13.4%)	246 (12.4%)
<i>\$80,000-\$99,999</i>	578 (9.3%)	190 (9.6%)
<i>\$100,000-\$149,999</i>	1,324 (21.4%)	433 (21.8%)
<i>\$150,000 or more</i>	350 (5.6%)	121 (6.1%)
<b>Ever Married</b>		
<i>Yes</i>	4,187 (67.5%)	1,362 (68.5%)
<i>No</i>	2,013 (32.5%)	627 (31.5%)
<b>Currently Have Firearm(s) In or Around Home</b>		
<i>Yes</i>	2,311 (37.3%)	714 (35.9%)
<i>No</i>	3,729 (60.1%)	1,225 (61.6%)
<i>Prefer Not to Answer</i>	160 (2.6%)	50 (2.5%)
<b>Are any firearms stored loaded?</b>		
<i>Yes</i>	895 (41.5%)	282 (43.7%)
<i>No</i>		338 (52.4%)

**Table 1 (continued)**

	Full Sample	Suicide Message Subsample
	1,189 (55.1%)	
<i>Unsure</i>	28 (0.5%)	9 (1.4%)
<i>Prefer Not to Answer</i>	47 (0.8%)	16 (2.5%)
<b>Which of the following storage procedures do you use for firearms in or around your home?</b>		
<i>Gun Safe</i>	1,092 (47.3%)	317 (44.4%)
<i>Gun Cabinet</i>	440 (19.0%)	136 (19.0%)
<i>Locking Device (e.g. Trigger Lock, Cable Lock)</i>	533 (23.1%)	152 (21.3%)
<i>Hard Cases (e.g. Pelican cases)</i>	457 (19.8%)	131 (18.3%)
<i>Hide in Closet or Drawer, Unloaded</i>	515 (22.3%)	162 (22.7%)
<i>Hide in Closet or Drawer, Loaded</i>	344 (14.9%)	103 (14.4%)
<i>Other</i>	120 (5.2%)	35 (4.9%)

least preferable (see Table 2).

Both firearm owners ( $n = 714$ ) and non-firearm owners ( $n = 1225$ ) rated law enforcement, military veterans, and active duty military personnel as the most preferable messengers. Furthermore, both firearm owners and non-firearm owners rated celebrities, casual acquaintances, and physicians or medical professionals as the least preferable messengers. Firearm owners and non-firearm owners significantly differed from one another in their average ranking of law enforcement (4.90 vs 4.35), hunting or outdoor organizations (6.81 vs 7.16), current military personnel (5.79 vs 5.31), the National Rifle Association (6.36 vs 6.82), family members (6.78 vs 7.41), casual acquaintances (9.69 vs 10.03), and gun show managers or coordinators (8.26 vs 7.89). These results can be found in Table 2.

### 3.2. Messenger preference rankings – Subgroups

Among firearm owners, White ( $n = 514$ ) individuals rated law enforcement, military veterans, and current military personnel as the most preferable messengers. Black firearm owners ( $n = 75$ ) rated law enforcement, family members, and current military personnel as the most preferable messengers. Within this same subsample, White respondents rated celebrities, casual acquaintances, and physicians or medical professionals as the least preferable messengers, whereas Black respondents rated celebrities, hunting or outdoor magazines, and physicians or medical professionals as the least preferable messengers. Although the hierarchy in rankings were largely similar across White and Black firearm owners, the two groups differed significantly in the mean rating of several specific sources. These results are presented in Table 3.

As with Black and White firearm owners, male ( $n = 396$ ) and female ( $n = 318$ ) firearm owners had fairly similar responses, rating law enforcement, military veterans, and current military personnel as the most preferable messengers. Both males and females also rated celebrities, casual acquaintances, and physicians or medical professionals as the least preferred messengers. Here again, although the ranked order of sources was similar between males and females, the average rating of several specific sources differed between groups. These results are presented in Table 3.

Among firearm owners, age groups differed on average rankings for several messengers. Given only three individuals were aged 85 or higher, we considered only age groups below that level. Age groups differed on their ranking of law enforcement, with a general trend of a higher rank among older individuals ( $F = 20.77; p < .001; \eta^2 = 0.06$ ; Age 18–24 rank: 5.48; Age 65–74 rank: 3.10). A similar trend emerged

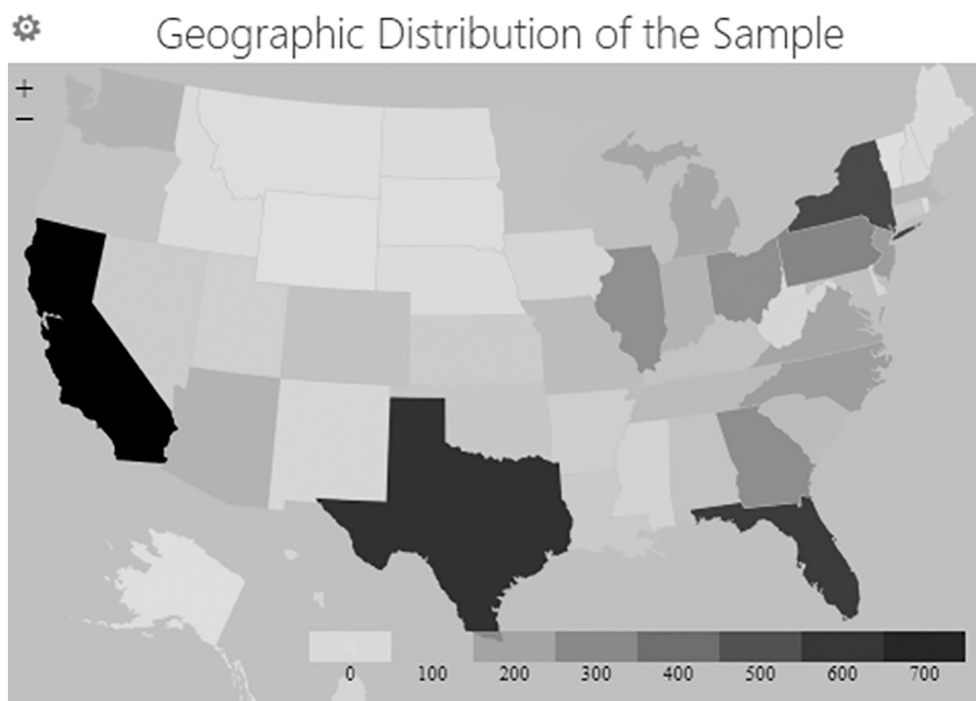


Fig. 1. Geographic distribution of sample.

for hunting or outdoor organizations ( $F = 5.01$ ;  $p < .001$ ;  $\eta^2 = 0.02$ ; Age 18–24 rank: 7.42; Age 65–74 rank: 6.17), military veterans ( $F = 4.54$ ;  $p < .001$ ;  $\eta^2 = 0.01$ ; Age 18–24 rank: 6.19; Age 65–74 rank: 4.90), current military personnel ( $F = 3.58$ ;  $p = .002$ ;  $\eta^2 = 0.01$ ; Age 18–24 rank: 5.61; Age 65–74 rank: 4.68), and firearm dealers ( $F = 2.32$ ;  $p = .031$ ;  $\eta^2 = 0.01$ ; Age 18–24 rank: 7.22; Age 65–74 rank: 6.99). In contrast, significant differences in rankings with a trend towards higher ranks among younger individuals emerged for casual acquaintances ( $F = 11.92$ ;  $p < .001$ ;  $\eta^2 = 0.04$ ; Age 18–24 rank: 9.07; Age 65–74 rank: 10.85), gun show managers or coordinators ( $F = 8.55$ ;  $p < .001$ ;  $\eta^2 = 0.03$ ; Age 18–24 rank: 7.07; Age 65–74 rank: 8.79), physicians or medical professionals ( $F = 3.33$ ;  $p = .003$ ;  $\eta^2 = 0.01$ ; Age 18–24 rank: 8.89; Age 65–74 rank: 9.62), and celebrities ( $F = 13.04$ ;  $p < .001$ ;  $\eta^2 = 0.04$ ; Age 18–24 rank: 10.39; Age 65–74 rank: 11.95).

No significant differences in rankings of preferred messengers emerged between firearm owners with and without military experience.

In our final subgroup analyses, we considered differences in rankings of sources between subgroups of firearm owners who engage in specific forms of firearm storage practices (loaded vs unloaded, with vs without locking devices, in vs not in a gun safe). In each of these analyses, the rank order of sources varied only minimally across groups, with law enforcement and those with military experience rated most highly and physicians and celebrities rated as the least credible. A small selection of significant differences emerged in the mean rankings of individual sources. These results are displayed in [Table 3](#).

### 3.3. Exploratory analysis examining preferred messengers on firearm storage for homicide and unintentional death prevention

In an effort to consider whether preferred messengers vary based upon the type of gun violence being discussed, we conducted an exploratory examination of mean rankings of messengers on firearm storage for both homicide and unintentional death prevention. In each case, the most and least preferred messengers mirrored those for suicide prevention. Specifically, law enforcement, current military personnel, and military veterans were the most strongly preferred messengers for homicide (4.20, 5.26, and 5.41 respectively) and unintentional death

(4.36, 5.32, and 5.44 respectively) prevention. Similarly, celebrities, casual acquaintances, and physicians or medical professionals were the least preferred messengers for homicide (11.08, 10.07, and 9.45 respectively) and unintentional death (11.13, 10.08, and 9.57 respectively) prevention. These results are presented in [Table 2](#).

## 4. Discussion

The present study sought to determine who firearm owners and non-firearm owners deem most credible to discuss safe firearm storage for suicide prevention and if demographic differences within the sample of firearm owners impact the ranking of sources. Within the full sample, law enforcement, current military personnel, and military veterans were deemed most credible. These findings are similar to those by Crifasi and colleagues (Crifasi et al., 2018). We conducted follow-up analyses examining preferred sources for information on safe storage to prevent homicide and unintentional deaths and the pattern of rankings mirrored the findings for suicide prevention. Such results indicate that, even as the precise content area focus shifts, the credibility of certain messengers may remain intact.

In an effort to extend beyond prior research, the bulk of our analyses focused on potential group differences in preferred messengers. Contrary to expectations, firearm owners and non-firearm owners both ranked law enforcement, military veterans, and active duty military personnel as the top three most credible sources. Additionally, they did not differ on the ranking of the bottom three sources. There were some differences between the groups, but the overall pattern of findings was relatively consistent regardless of firearm ownership status. Although surprising, this finding somewhat mitigates fears regarding the degree to which non-firearm owners can understand the lens through which firearm owners view messaging on firearm storage. As noted earlier, one meaningful concern is that messaging is being driven by non-firearm owners and that, because of this, the framing of messaging could fail to resonate with the intended audience due to an inability of the individuals developing the message to understand effective methods for speaking persuasively on the issue. This finding does not diminish the importance of developing messages in collaboration with firearm

**Table 2**

Mean rankings of various messengers on firearm safety for suicide prevention and between group differences based on firearm ownership within the full sample of individuals randomized to rank messengers on suicide prevention (n = 1,939)

	Mean Ranking Suicide (Homicide; UD)	% Ranked in Top 3	% Ranked in Bottom 3
Law Enforcement	4.55 (4.20; 4.36)	54.4%	8.9%
Hunting or Outdoor Organizations	7.03 (7.03; 6.92)	18.7%	13.4%
Military Veterans	5.53 (5.41; 5.44)	37.1%	8.8%
Current Military Personnel	5.47 (5.26; 5.32)	38.8%	8.8%
National Rifle Association	6.63 (6.55; 6.47)	26.2%	15.9%
Firearm Manufacturers	6.99 (6.88; 6.71)	20.8%	13.8%
Firearm Dealers	6.93 (6.68; 6.66)	19.2%	12.9%
Family Members	7.17 (7.45; 7.53)	23.7%	16.7%
Hunting or Outdoor Magazines	8.52 (8.53; 8.39)	8.5%	20.3%
Casual Acquaintances	9.92 (10.07; 10.08)	7.6%	44.9%
Friends or Coworkers	8.25 (8.41; 8.52)	14.8%	21.8%
Gun Show Managers or Coordinators	8.04 (8.02; 7.92)	11.3%	17.5%
Physicians or Medical Professionals	9.01 (9.45; 9.57)	12.5%	36.1%
Celebrities	10.96 (11.08; 11.13)	6.4%	60.1%

	Gun at Home (n = 714)	No Gun at Home (n = 1225)	R <sup>2</sup>	F	p	p <sup>1</sup> <sup>2</sup>
Law Enforcement	4.90	4.35	.01	9.25	.002	.01
Hunting or Outdoor Organizations	6.81	7.16	.00	4.30	.038	.00
Military Veterans	5.57	5.50	.00	2.57	.659	.00
Current Military Personnel	5.79	5.31	.00	8.09	.005	.00
National Rifle Association	6.36	6.82	.00	6.24	.013	.00
Firearm Manufacturers	7.02	6.99	.00	0.03	.873	.00
Firearm Dealers	6.85	6.99	.00	0.64	.425	.00
Family Members	6.78	7.41	.01	10.90	.001	.01
Hunting or Outdoor Magazines	8.43	8.56	.00	0.67	.415	.00
Casual Acquaintances	9.69	10.03	.00	4.18	.041	.00
Friends or Coworkers	8.27	8.23	.00	0.05	.818	.00
Gun Show Managers or Coordinators	8.26	7.89	.00	5.25	.022	.00
Physicians or Medical Professionals	9.20	8.87	.00	3.24	.072	.00
Celebrities	11.06	10.88	.00	1.16	.283	.00

Note: All messengers were rated, resulting in a scale from 1-14, with lower scores representing a more favorable rating. Answer choices were presented in the order listed in this table. UD = Unintentional death

owners; however, it provides some support for the notion that common ground and collaboration are plausible.

We also examined if several demographic variables impacted who firearm owners deemed to be credible messengers. Male and female firearm owners reported the same top three and bottom three sources, as did those with and without lifetime military affiliation. Rank order remained consistent for many sources across groups; however, mean ratings differed in several cases. In this sense, the value of specific sources relative to others did not necessarily vary between groups, but in a limited number of instances, the extent to which specific sources were deemed credible did.

We also considered whether preferences for specific messengers

varied depending upon whether firearm owners reported using specific firearm storage practices. Rankings were largely similar regardless of storage practices. Those who reported not using locking devices and those who reported not using gun safes reported significantly stronger preferences for law enforcement officers than did their counterparts; however, in each case, both those who did and did not use the safe storage method rated law enforcement officers as the most credible messenger.

Across each of these subgroup analyses, a general pattern of convergence emerged around law enforcement and individuals with military experiences standing out as particularly credible messengers and physicians and celebrities standing out as particularly lacking in credibility. Although not assessed directly, one plausible interpretation of these findings is that firearm owners – despite their heterogeneity across a range of characteristics – tend to favor hearing from individuals they perceive as part of or more sympathetic to their own communities. A drive for autonomy and for feeling that their own community is driving messaging may prompt firearm owners to be less receptive to a message they may otherwise find persuasive due to concerns that the individual voicing the message has an unspoken agenda, an unwillingness or inability to understand or relate to them, or a sense that they have the authority to tell them how to manage privately owned possessions.

Our subgroup analyses also considered differences between White and Black firearm owners. White individuals in the US are more likely than other racial groups to own firearms and, because of this, studies examining firearm owners tend to produce results that largely represent the perspectives and experiences of White individuals. This approach is problematic for analyses on preferred messengers and may result in safe storage messages that do not resonate with all of the intended audiences. In our sample, White firearm owners ranked law enforcement, military veterans, current military personnel, and the National Rifle Association higher than did Black firearm owners. Black firearm owners ranked casual acquaintances, friends or coworkers, gun show managers or coordinators, physicians or medical professionals, and celebrities significantly higher than did White firearm owners. When creating messages, it thus appears important to diversify the source.

Our decision to compare White firearm owners specifically to Black firearm owners was driven by the particularly strained relationship that Black individuals have with law enforcement relative to White individuals. Our data were collected in the weeks surrounding the death of George Floyd and the subsequent racial justice protests aimed at calling attention to the disproportionate risk of police violence experienced by Black Americans. Although some areas have had success in developing collaborative community policing that has improved relationships between law enforcement and racial minority residents in urban areas (Peyton et al., 2019), this is far from universal nationwide, as evidenced by the many instances of police brutality against Black men and women fueling the protests across the United States since late spring 2020. Previous research has found that those who identify as Black and Hispanic report more negative interactions with the police than those who identify as White (Weitzer and Tuch, 2004); and those who identify as Black report being less satisfied with the police (Wu et al., 2009). These findings may partially explain why those who identify as Black rank law enforcement officers significantly lower than those who identify as White. However, given that law enforcement officers were still ranked as a top three source by both groups, they may still serve as the most credible source if a single message were being developed to deliver nationally. Our data were collected prior to many of the recent protests and, as such, it is entirely possible that firearm owners – particularly Black firearm owners – would provide different ratings in future studies. In this sense, current events highlight the importance of continuously evaluating such perceptions. Additional research is needed to determine if the race and ethnicity of the law enforcement officer increases credibility, and if this differs based on the recipient.

The implications for our findings include, but also extend beyond

**Table 3**  
Differences between subgroups of firearm owners on rankings of messengers on firearm safety for suicide prevention

	White (n = 514)	Black (n = 75)	p	p <sup>12</sup>	Military (n = 146)	Civilian (n = 568)	p	p <sup>12</sup>	Locked (n = 132)	Unlocked (n = 582)	p	p <sup>12</sup>
Law Enforcement	<b>4.51</b>	<b>6.31</b>	<b>.000</b>	<b>.03</b>	4.92	4.89	.927	.00	<b>5.54</b>	<b>4.75</b>	<b>.031</b>	<b>.01</b>
Hunting or Outdoor Organizations	6.52	7.35	.065	.01	6.66	6.85	.565	.00	6.91	6.79	.741	.00
Military Veterans	<b>5.27</b>	<b>6.81</b>	<b>.000</b>	<b>.02</b>	5.69	5.54	.656	.00	5.57	5.58	.983	.00
Current Military Personnel	<b>5.58</b>	<b>6.64</b>	<b>.015</b>	<b>.01</b>	6.07	5.72	.290	.00	6.08	5.72	.307	.00
National Rifle Association	<b>6.06</b>	<b>7.28</b>	<b>.014</b>	<b>.01</b>	6.38	6.35	.944	.00	<b>7.02</b>	<b>6.21</b>	<b>.037</b>	<b>.01</b>
Firearm Manufacturers	6.95	7.25	.516	.00	6.82	7.07	.457	.00	7.22	6.98	.500	.00
Firearm Dealers	6.75	6.76	.990	.00	6.54	6.93	.228	.00	6.95	6.83	.712	.00
Family Members	6.91	6.45	.356	.00	7.19	6.68	.166	.00	6.76	6.79	.940	.00
Hunting or Outdoor Magazines	8.41	8.79	.341	.00	8.18	8.49	.316	.00	8.36	8.45	.796	.00
Casual Acquaintances	<b>10.19</b>	<b>8.16</b>	<b>.000</b>	<b>.03</b>	9.41	9.76	.313	.00	9.15	9.81	.068	.01
Friends or Coworkers	<b>8.45</b>	<b>7.36</b>	<b>.013</b>	<b>.01</b>	8.37	8.25	.717	.00	<b>7.71</b>	<b>8.40</b>	<b>.048</b>	<b>.01</b>
Gun Show Managers or Coordinators	<b>8.49</b>	<b>7.15</b>	<b>.001</b>	<b>.02</b>	8.56	8.18	.222	.00	8.06	8.30	.462	.00
Physicians or Medical Professionals	<b>9.52</b>	<b>8.53</b>	<b>.034</b>	<b>.01</b>	9.35	9.16	.595	.00	9.08	9.23	.701	.00
Celebrities	<b>11.38</b>	<b>10.16</b>	<b>.004</b>	<b>.01</b>	10.86	11.12	.433	.00	10.59	11.17	.093	.00

	Male (n = 396)	Female (n = 318)	p	p <sup>12</sup>	Loaded (n = 282)	Unloaded (n = 338)	p	p <sup>12</sup>	Gun Safe (n = 283)	No Safe (n = 431)	p	p <sup>12</sup>
Law Enforcement	4.77	5.07	.290	.00	5.00	4.96	.919	.00	<b>5.31</b>	<b>4.63</b>	<b>.018</b>	<b>.01</b>
Hunting or Outdoor Organizations	<b>6.50</b>	<b>7.20</b>	<b>.011</b>	<b>.01</b>	6.83	6.55	.346	.00	6.96	6.71	.374	.00
Military Veterans	5.47	5.70	.395	.00	5.88	5.58	.313	.00	5.71	5.48	.411	.00
Current Military Personnel	5.78	5.80	.946	.00	6.11	5.85	.373	.00	<b>6.23</b>	<b>5.50</b>	<b>.007</b>	<b>.01</b>
National Rifle Association	6.31	6.41	.752	.00	6.40	6.10	.359	.00	6.25	6.42	.573	.00
Firearm Manufacturers	7.15	6.86	.300	.00	7.14	6.90	.417	.00	6.84	7.14	.299	.00
Firearm Dealers	6.67	7.08	.113	.00	<b>6.37</b>	<b>6.99</b>	<b>.028</b>	<b>.01</b>	6.57	7.04	.083	.00
Family Members	<b>7.08</b>	<b>6.41</b>	<b>.025</b>	<b>.01</b>	6.73	7.11	.236	.00	7.09	6.58	.098	.00
Hunting or Outdoor Magazines	8.29	8.60	.215	.00	8.23	8.44	.409	.00	8.38	8.46	.746	.00
Casual Acquaintances	9.89	9.44	.106	.00	9.58	9.84	.385	.00	<b>9.29</b>	<b>9.95</b>	<b>.022</b>	<b>.01</b>
Friends or Coworkers	8.19	8.38	.490	.00	<b>8.57</b>	<b>7.97</b>	<b>.040</b>	<b>.01</b>	8.20	8.32	.668	.00
Gun Show Managers or Coordinators	8.37	8.12	.333	.00	8.02	8.32	.285	.00	8.10	8.36	.314	.00
Physicians or Medical Professionals	<b>9.47</b>	<b>8.86</b>	<b>.035</b>	<b>.01</b>	9.43	9.38	.873	.00	9.21	9.19	.957	.00
Celebrities	11.06	11.07	.950	.00	10.71	10.98	.379	.00	10.84	11.21	.185	.00

Note: All messengers were rated, resulting in a scale from 1-14, with lower scores representing a more favorable rating. Bold text indicates significant between group differences (p < .05).

clinical practice. The consistently low rating for physicians and medical professionals highlight that, in healthcare settings, providers may face substantial skepticism from patients when they discuss firearm storage. This aligns with prior work demonstrating that half of firearm owners believe it is never appropriate for healthcare providers to discuss firearms (Betz et al., 2016). Our findings do not speak directly to the reason for the lack of credibility providers have as messengers on this topic, but potential explanations include a sense that healthcare providers lack experience and knowledge about firearms, perceptions of provider efforts to discuss this issue as a politically driven “gun grab,” and a sense that healthcare providers discussing firearm storage represent an invasive infringement on firearm owners’ autonomy, particularly if providers are experienced as an outgroup by the firearm owner.

One avenue potentially worth exploring is to systematically train health care providers to have effective conversations about firearm storage so as to better position them to present as credible to firearm owners. A recent trial of lethal means counseling among firearm owning members of the Mississippi National Guard reported increased use of safe firearm storage methods (locking devices, gun safes) across six months and that firearm owners reported high levels of acceptability for the intervention (Anestis et al., 2021). In this case, the intervention was administered by clinical psychology doctoral students using a motivational interviewing framework. Although these clinicians were not professional health care providers, they were clinicians in training. As such, these findings may speak to the potential for conversations that validate the perspective of firearm owners, do not prescribe specific actions, do not allow for arguing, and do not present the clinician as the expert to serve as a vehicle for increasing credibility and persuasiveness.

Beyond healthcare settings, our findings have meaningful public health implications, as they highlight the need to be mindful not only of what message we are conveying, but who is serving as a vehicle for that

message. Law enforcement officers, military veterans, and active duty military personnel were consistently ranked as the three most preferred sources for messages on safe firearm storage, including but not limited to when suicide prevention is the focus of the message. In this sense, these groups may represent pivotal targets for partnerships with suicide prevention and gun violence prevention groups aiming to increase the salience of their messaging. At the same time, variations in the mean ranking of these same groups across demographic lines such as sex, age, and race highlight that not all individuals will find the same messenger equally compelling, even if they generally rank that messenger as more preferable than others.

This study had several limitations. Our sample size was large, but the number of individuals representing each racial group was too low to allow for more nuanced analyses than those yielded by a White/Black dichotomy. It is also worth noting that, although we examined differences among subgroups, we did so by considering specific demographic variables largely in isolation from one another. Future research should consider analytical approaches that allow for a deeper understanding of how these factors work together, thereby allowing for more nuance in the development of messages that will resonate with intended audiences. Furthermore, the content of the messaging was not specified. It may be that the preferred messenger depends upon the information included in the message and that the use of some content (e.g. “means restriction” instead of “means safety”) may render the messenger irrelevant entirely (Stanley et al., 2017). Additionally, we did not randomize the presentation order of the sources and, as such, it is possible that the order that sources were presented influenced the manner in which participants rated them. These concerns are somewhat mitigated by the fact that the average rankings were consistent with prior work and did not entirely mirror the presentation order. Nonetheless, future work should randomize presentation order to address this liability. Lastly, our

use of quota sampling methods rather than probability based sampling leaves the generalizability of our findings open to question. Mirroring Census demographics does not guarantee representativeness of our sample and it remains plausible that a meaningful component of the community whose voices should be represented in these findings simply were not included in our sample.

To extend these findings further, future research must consider several steps. Although understanding preferred messengers is important in its own right, it may be that preferences vary when the content of the message changes or the medium through which the message is received varies. In this sense, future work should be designed so as to examine these possibilities, randomizing individuals to vary not only on who is speaking to an issue, but also what the individual is saying and in what format the viewer is receiving the information. Additionally, we provided respondents with a set list of potential messengers, which both limits the options they could endorse and framed the question in such a way as to potentially shape how they considered the issue. Although this would create coding difficulties, future work should consider asking an open ended question with a free response option, thereby allowing individuals to generate their own answers that may better reflect their true preferences. Lastly, how individuals view their hypothetical preferences does not necessarily align with the extent to which specific messengers may motivate meaningful and sustained changes in firearm storage practices. Future work should be designed so as to examine the impact of messenger on actual behavior change.

#### Author credit statement

Anestis - Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing. Bond - Conceptualization, Writing - original draft, Writing - review & editing. C. Bryan - Data curation, Writing - original draft, Writing - review & editing. A. Bryan - Writing - original draft, Writing - review & editing.

#### Declaration of Competing Interest

Michael Anestis receives personal income from speaking and consulting related to firearms and suicide, as well as royalties from a book on this topic. He is also PI on a funded clinical trial of lethal means counseling. Craig Bryan receives personal income from trainings on lethal means counseling.

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