

Safe storage of home firearms: The who, what, and to whom of persuasion

Nicholas Buttrick

University of Wisconsin-Madison

Author Note: Nicholas Buttrick, Department of Psychology, University of Wisconsin-Madison. Correspondence concerning this article should be directed to Nicholas Buttrick, Department of Psychology, University of Wisconsin-Madison, Brogden Psychology Building, 1202 W Johnson St, Madison, WI 53706. E-mail: nbuttrick@wisc.edu.

Abstract

Most American firearm-related deaths are deaths by suicide: ~ 27,000 deaths in 2023 alone. Storing one's home firearms in a safe and secure manner - unloaded, locked up, and with ammunition stored separately - has the potential to interrupt potential suicide attempts and thereby save lives. And yet, the majority of American firearm owners, even those who think of storage as a vital part of what it means to be a responsible firearm owner, choose not to store all their guns in a safe or secure manner. How can communicators persuade owners to change their behavior? Drawing on foundational work in the psychology of persuasion, we review the existing literature, focusing on *who* is doing the communication, *what* is being communicated, and *to whom* these messages are directed. Gun owners are not a monolith, and so understanding who a given audience finds credible, trustworthy, and caring; and what messages that audience finds compelling (especially if the message can be aligned with valued identities) is vital for any attempt to persuade owners to take action.

280 character social media post

The safe home storage of firearms matters: storing securely can meaningfully cut down on death by suicide. When attempting to persuade owners to change their storage behavior, one needs to think about *who* is communicating, *what* they are saying, and *to whom* they are speaking.

4-6 bulleted key points

- Nearly 60% of all firearm-related deaths in the United States in 2023 were deaths by suicide
- Storing home firearms unloaded, locked, and with ammunition stored separately can reduce the likelihood of death by firearm suicide in the home
- Most owners keep at least one firearm either loaded or unlocked
- In attempting to persuade owners to change their storage practices, communicators need to be mindful of who is communicating the message, what they are saying, and to whom they are speaking.
- Communicators who are more trustworthy and authoritative, and who have ties of care to the listener, are viewed as more credible
- Communications that acknowledge that ownership is a valid, protected choice, and that owners have identities that matter to them, are viewed as more welcoming
- Audiences find different messages and messengers credible - given the diversity of owners and ownership in America, there are no one-size-fits-all solutions

In 2023, the most recent year for which data are available, nearly 60% of the 46,728 firearm-related deaths in the United States were deaths by suicide. These 27,300 deaths mark the highest rate for any year on record and represent a nearly 20% increase from the prior decade. Guns are involved in an estimated 55% of all deaths by suicide in the US - at least partially driven by the overwhelming deadliness of a bullet: 90% of suicide attempts with a gun are fatal (see Kim et al., 2025). This lethality is far higher than all other methods: the majority of non-firearm suicide attempts do not, in fact, end in death (see Azrael & Miller, 2016). Suicide attempts are often impulsive, with suicidal ideation coming on quickly and then quickly receding, and so a gun, which significantly increases the risk of fatality, is an especially dangerous object to have available. Research suggests that even though having a gun in the home is not related to increased suicidal ideation (e.g. Miller, Swanson, & Azrael, 2016; Watkins & Lizotte, 2013), having a gun in the home at least triples the likelihood that a household member will die by suicide, with estimates as high as a 35-fold increase for some subgroups (Anglemyer et al., 2014; Studdert et al., 2020). Given that an estimated one-third of American households possess at least one gun, it is clear just how pressing the problem of American gun-related suicide is (see RAND, 2018a for a review).

There are things that gun-owners can do to reduce the likelihood that someone in the family will use their gun to kill themselves. Public health experts have suggested that putting up barriers to prevent immediate access to a fully loaded weapon can meaningfully reduce firearm-related deaths by suicide. Decreasing the immediate useability of guns at home by keeping guns stored unloaded, storing guns in a different place than where ammunition is stored, and locking up guns at home can create windows of time that could potentially allow the suicidal urge to

wane (see Ramchand, 2022 for a review; though also see Miller et al. 2025 for an argument that storage matters less than access to guns in general).

Even though these storage approaches have the clear potential to save the lives of owners and the people close to them, it is notable how infrequently they are followed. Fewer than half of gun owners report storing all their home firearms locked and unloaded, a number that does not meaningfully change when looking just at owners with versus without children in the home (Conrick et al., 2025; Crifasi et al., 2018). Even among owners who would be expected to be the most likely to store guns securely – specifically, those who self-report both that secure storage is a very important part of what it means to be a responsible gun owner and that having a gun accessible for defensive use is not as important for responsible ownership - only 53.1% of gun owners in one nationally-representative study reported that all their guns at home are stored locked and unloaded (Buttrick et al., under review).

If securing home guns has the potential to reduce the most common form of firearm death, a form of death that may be uniquely devastating to family members (see Cerel et al., 2008 for a review), why would anyone choose not to? It's not because owners are unaware of the existence of safety devices. In a qualitative analysis of 20 firearm training courses, 90% of courses discussed using gun safes and only 10% advised keeping guns loaded and unlocked (Hemenway et al., 2019).

For some owners, it is clear that they think that the benefits of having a gun quickly accessible outweigh the risks. This need to have a gun available at short notice in case they face an intruder is frequently mentioned in qualitative and quantitative studies of the choices that individuals make in storing their home firearms (Berrigan et al., 2019; Buck-Atkinson et al., 2023; Crifasi et al., 2018; Salhi, Azrael, & Miller, 2020; Schenck et al., 2022; Simonetti et al.,

2019; though see Warner, 2022; 2024 who argues that an individual's worries about their status in society is a better predictor of storage behavior than fear of victimization). Owners in general tend to underestimate the link between firearm ownership and the likelihood of death by suicide in the household: only 6.3% of owners in a recent nationally representative survey agreed that having a gun in the home increases the risk of suicide (Conner et al., 2017). Owners similarly overestimate the likelihood that they will need to use a gun in self-defense (e.g., Barnhart et al., 2018; Stroebe & Leander, 2024). Given that owners often believe that the likelihood that they will need to use a gun in self-defense is higher than the likelihood of a suicide attempt by someone in their home, it is perhaps unsurprising that those who do not believe that gun ownership is associated with suicide are less likely to store their home firearms unloaded and locked (Anestis et al., 2018; Anestis & Bond, 2024).

For other owners, pragmatic issues may be more important determinants of gun storage practices. In one recent nationally representative survey, a meaningful number of owners simply did not know what devices they should be using in the first place, and therefore chose not to use any at all (Anestis et al., 2023; see also the qualitative work of Ewell-Foster et al., 2024, where cost of devices came up as a major barrier).

Finally, there may be some owners who simply don't consider home storage as an important part of ownership, instead relying on other aspects of firearm responsibility to maintain safety. In one nationally representative study of gun owners, 12.6% of participants reported believing that storage was not an important part of being a responsible firearms owner, while handling, maintaining, skills training and practice, educating others, and having a gun readily accessible, were all rated as very important (Buttrick et al., under review). These owners

may be relying more on cultivating the individual character of gun users than on structural solutions to protect themselves against the dangers that guns bring.

Attitudes and behaviors around firearm storage are not set in stone. There is evidence showing that persuasion campaigns can change the way that owners store their firearms as well as the ways that they think about storage (see Crosse, 2017; Ngo et al., 2019; RAND, 2018b, Pallin, Spitzer, et al., 2019; Roszko et al., 2016; Rowhani-Rahbar, 2016 for meta-analytic reviews). There is, however, quite a great deal of variability in the effectiveness of these approaches, with some persuading owners far more than others. How then, can we design and implement communications that will increase the usage of safe and secure home storage solutions?

In laying out a review of the current literature and making recommendations for policymakers, we rely on foundational work in the psychology of persuasion. During World War II, a group of researchers working out of the US Army's Information and Education Division were tasked with trying to understand and improve the Army's persuasive messaging approaches (and, at the same time, counter Nazi propaganda). This initial research, continued after the war by the Yale Communication Research Program, suggested that when trying to understand how to change behavior by changing beliefs and attitudes, communicators needed to consider *who* was delivering the message, *what* content was being communicated, *to whom* the message was delivered to, and *how* listeners reacted. This approach provided a framework for understanding the complexity of persuasion, pointing aspiring persuaders to the ways in which the same message could be received differently based on who the communicator was, and the way that different listeners could interpret the same message by the same communicators in disparate ways depending on listeners' characteristics. This approach also highlighted that persuasion is a

social phenomenon, and that successful communication requires understanding how group norms, status hierarchies, and the importance of group membership all affects someone's willingness to be persuaded (see Hovland et al., 1953).

Over the past decade or so, public health researchers have increasingly emphasized the importance of 'culturally competent' communication in encouraging gun owners to rethink their storage and staging plans (see the consensus statements of Bulger et al., 2019). Instead of simply dictating recommendations and hoping that the force of public health authority will be enough to motivate reevaluation of owners' storage approaches (Wintemute et al., 2016), recent research has begun to investigate how to best persuade people to change their behavior. As the passage of federal, state, or local regulations to compel changes in home firearm storage are likely infeasible (e.g., McMurtry, 2025; Winkler, 2011), any alteration in an individual's decisions about how and when to lock their firearms up will have to come from the owner themselves. What does the literature say about how to effectively communicate the need to store home firearms securely? Guided by a social psychological approach to persuasion, we organize this review of the existing literature in terms of approaches that emphasize *who* is doing the communication; approaches that emphasize *what* content is being communicated; and approaches that emphasize *to whom* communicators are speaking. We conclude with recommendations from this nascent literature and important takeaways for any policymaker engaging in this work.

Who

What sort of messengers are the most effective in talking to firearm owners about storage decisions? For gun owners to be open to what a messenger has to say, they need to believe that the messenger is both credible and trustworthy: that the messenger knows what they're talking

about and also respects the owner enough to take their concerns seriously. Having someone that appears not to know what they're talking about try to dictate to you how to live your life (especially if they're trying to restrict your freedom to do what you want) creates *reactance* - a psychological phenomenon in which listeners become motivated to assert the freedoms that they see as threatened by controlling powers by deliberately disobeying commands (Brehm, 1966; see Quick et al., 2013 for a review). If a person feels that their freedom to store a gun however they like is under attack by the ignorant, they may wish to regain that freedom by ignoring or devaluing what those communicators have to say. Research suggests that if a gun owner does not view a source as credible, they will not see the advice as accurate, and will therefore disregard it (Anestis et al., 2022; Bandel et al., 2023). Moreover, if the message about how to store a firearm comes from someone that they do not trust, they may feel antagonized by the message (Marino et al., 2016).

Are some messengers more trustworthy and credible than others? People who are viewed as experts in firearms, such as firearms trainers, sportsmen's clubs, and game wardens, may be especially trustworthy and able to provide well-founded advice on all aspects of gun ownership, storage included (Ewell-Foster et al., 2024). Several nationally representative studies of gun owners have suggested that members of the security establishment, such those in the armed services, veterans, and law enforcement are particularly credible, while celebrities are viewed as less credible (Anestis, Bond et al., 2021; Bond et al., 2022; Bond et al., 2024; Crifasi et al., 2018).

Trust doesn't just come from a person's professional role - relationship ties also give a messenger more authority. Unsurprisingly, given the importance of believing that a given messenger cares about one's well-being and is requesting behavior change in order to make

one's life better, family members are persuasive messengers for safe storage requests (Walters et al., 2012). Parents may be especially important in these contexts, as so much of gun culture is handed down intergenerationally. People frequently learn to shoot from their parents and so may be more receptive to their expertise than to unfamiliar outsiders (Ewell-Foster et al., 2024).

Relatedly, in the armed services context, where bonds of brotherhood among soldiers is strenuously cultivated, having fellow soldiers advocate for various storage options may be more effective than if the same message comes from civilians, who may not view firearms in the same way (Hoyt & Duffy, 2015)

The role of physicians is more complex. While many physicians may not realize it (Roszko et al., 2016), it is in fact legal for them to discuss firearms and firearm storage with their patients (Wintemute et al., 2016). Whether those conversations will be effective is a separate question. Several studies suggest that a physician may not be seen as a particularly authoritative voice (Anestis, Bond et al., 2021; Bond et al., 2024; Crifasi et al., 2018). Nevertheless, in one study, 54% of surveyed owners said that talking with their healthcare provider about storage was at least sometimes appropriate. If they viewed having a gun at home as a suicide risk, a full 75% of gun owners viewed the conversations as appropriate (Betz et al., 2016). This willingness to trust healthcare providers is similarly conditional for veterans who think that clinicians should talk to gun owners who are going through emotionally tough times about storage (Aunon et al., 2023).

Having a personal relationship with one's caregiver may be especially powerful in working towards a shared understanding of the risks and benefits of various home-storage setups. One qualitative study found that getting a message about firearm storage from a faceless healthcare system was viewed as alienating, but getting the same message in conversation with

one's primary physician was seen as far more acceptable (Jager-Hyman et al., 2019). If discussions about firearm storage seem to be coming from a place of care, they are much more persuasive than if they are being rattled off in an automated checklist (Dobscha et al., 2021).

Saying What

Once a credible messenger has been identified, what should they say? Both qualitative and quantitative studies suggest that firearm storage can be a fraught issue, and that messages may backfire if not considered carefully (e.g., Betz et al., 2021; Khazanov et al., 2022; Marino et al., 2016). Simply asking people directly about their storage approaches may be seen as overly intrusive and, for some, perceived as the first step down a slippery slope to a conversation about firearm restrictions and confiscation. One study of veterans found that direct questioning about firearms by physicians during primary care visits, without any prefatory buildup made them feel that they were being judged negatively about their fitness for being a gun owner. To quote one of the veterans in that study, "You just exposed every veteran's fear in this, because they know that the doctor has a buzzer right there. He's already buzzed the security guys. That just to me screams just like 'we're coming to get you.'" (Dobscha et al., 2021). Similarly, there may be risks in simply rattling off statistics on guns and suicide, without contextualizing them to the population of interest. Data on national trends may not be credible in specific local contexts, and gun owners may believe that these numbers apply to others but not to them (Ewell-Foster et al., 2024; Conner et al., 2017).

Instead, the public health establishment recommends that messengers use 'culturally competent' messaging that attempts to communicate with firearm owners in a more humane way (see the consensus statement in Bulger et al., 2019). Research suggests that messengers should

stress that gun ownership is one's right under the United States constitution, not something that the communicator is interested in taking away, and that gun storage is something that only the owner of the firearm can decide for themselves (Palin et al., 2019; Marino et al., 2018).

Conveying such a non-judgmental stance is deeply appreciated by owners (Wolk et al., 2018).

Firearm ownership is a meaningful identity to many owners (e.g., Buttrick, 2020) and indicating that a communicator is not out to attack that identity can defuse worries about being judged negatively or controlled by people who 'don't get it' (see Khazanov et al., 2022 for a review).

Stressing that storage choices lie with the gun owner and that the messenger is not interested in controlling their behavior helps avoid the defensiveness that can come from psychological reactance.

After establishing that a communicator is coming from a place of good faith, messages that couch gun storage recommendations in core elements of firearm culture may be more effective than those that do not. Drawing on the desire of owners to keep their families safe from harm (Carlson, 2015), one recommendation is to highlight how storage decisions help to protect loved ones from unintentional harm (Henn et al., 2019; Marino et al., 2018). Another recommendation is to highlight how storage aligns with fundamental aspects of firearms ownership in general, such as the 4 basic rules of firearms handling that are taught in hunter education and most other gun familiarization classes (Hunter Ed, 2025): treat every gun as if it's loaded; always point the muzzle in a safe direction; be aware of what's beyond your target; and keep your finger off the trigger until you are ready to shoot (Pruitt et al., 2022). By framing gun storage as an integral aspect of what it means to be a responsible firearm owner, messengers may be able to center storage as a primary part of these valued identities (Betz et al., 2021; Marino et al., 2018).

Finally, there may be some benefit in helping gun owners navigate a complex set of storage alternatives. Many owners may be open to different storage approaches but have not yet implemented them due to confusion about what options exist and are best fit for their purpose (Anestis et al., 2023; Ewell-Foster et al., 2024). Providing practical guidance for storage may reduce the perceived logistical barriers to changing one's firearm storage behavior, thereby encouraging behavioral change (Khazanov et al., 2022).

Care should be taken, however, to making sure that both messenger and listener are interpreting the same words in the same way. The phrases 'firearm safety' or 'firearm responsibility' can be understood in many different ways, and if communicators do not work to match their interpretation of the word with that of their audience, there is a chance for misunderstanding. Safety can mean both 'safety from suicide' and 'safety from victimization by outsiders' (Pruitt et al., 2022); and 'responsibility' can contain both 'acting responsibly to keep one's firearms out of easy reach' and 'acting responsibly to protect one's family' (Buttrick et al., under review). In existing messaging, for example, public health approaches use 'responsible firearm ownership' to mean 'locking up one's guns' (e.g., Fryhofer, 2023; see also BulletPoints, 2025), whereas messages from the gun industry emphasize both storage and accessibility as key parts of what it means to be responsible (NSSF, 2025). A communicator talking about gun safety or responsibility without considering the alternate meanings of the concepts may end up demonstrating their own ignorance of the cultural space, thereby denting their credibility (Pruitt et al., 2022). Simply assuming that a message is being understood as intended by the listener, without confirming that worldviews are, in fact, being shared, risks undermining the messaging attempt altogether. Instead, communicators should be clear about what they mean by safety, what

specifically they want owners to do, why they are qualified to make the recommendation, and why they are deserving of the trust of the audience.

To Whom

The most understudied part of firearm storage communications is arguably the most important: how do different listeners respond to different messages and messengers? Researchers suggest that one-size-fits-all approaches to firearm storage will not be effective, given the wide diversity of owners (Simonetti et al., 2018). Not all audiences trust the same messengers in the same way, and messages around safe storage that seem to be mistargeted or unthinking risk alienating the prospective audience, demonstrating that the communicator does not, in fact, care about the well-being of the people they are talking to, and therefore should not be seen as trustworthy (Dobscha et al., 2021; Ewell-Foster et al., 2024). It is vital to know what different audiences want from different communicators.

One study looked at different types of ownership, separating out those who own just one handgun, those that own a handful of guns, and those that own five or more guns (Bond et al., 2022). While all three groups of owners tended to view the same messengers as more or less credible, there were nevertheless meaningful differences in who was most credible to each group, as well as differences in overall credibility of any given messenger. Law enforcement, for example, was significantly more credible to owners of more than five guns than it was to the other groups of owners. Similar work has suggested that groups like the NRA might be trusted messengers for some owners but not all. In one study, Black men rated the NRA as a high-credibility source on firearm safety, while Black women rated the NRA as among the least credible (Bond et al., 2024).

Finally, research suggests that the way that owners relate guns to the rest of their identities may shape the sorts of messages and messengers that they are open to. One study found that, among those open to additional training, owners who connected their firearms ownership with their Christian faith were more likely than non-religious owners to believe that their churches would be good locations for firearm safety interventions. But among those who saw themselves as proficient owners already, messages connecting firearm ownership to their religion was not enough to interest them in firearm safety (Conrick et al., 2023).

This emphasis on the psychological, not just demographic features of ownership is key in assessing message and audience fit. In our own work on firearm storage, we have found that beliefs about the nature of responsible firearm ownership predict actual storage behavior fairly well, but these beliefs are not strongly associated with demographic features of individual gun owners (Buttrick et al., under review). Knowing what a person looks like is very different from knowing how they see the world, and to mistake one for the other risks stereotyping a highly diverse group of American gun owners.

Exemplars

Much of the existing literature on campaigns to encourage changes in storage behavior among owners has been interview- or survey-based, and much of it has taken place in the clinical setting with physicians talking directly to owners. Only a handful of studies have been randomized controlled trials in the real world that directly assess changes in behavior (see Crosse, 2017; Pallin, Spitzer, et al., 2019; RAND, 2018b; Rowhani-Rahbar et al., 2016; Ngo et al., 2019 for reviews). These studies show that interventions that distribute safety devices such as cable-locks or safes are more effective than those that only rely on messaging appeals (see also

Anestis, Bryan et al., 2021 for a more recent successful intervention in distributing locks). By eliminating barriers such as cost and availability, these distribution-based interventions can ease the cognitive and time burden of having to find and choose security devices. For a safety device to be used, it needs to be actually present in the home, and so providing a device clears that low hurdle. Owners do differ in their approval and utilization of devices such as cable locks, lockboxes, and safes (see Buck-Atkinson et al., 2023 for a review), so if messengers include distribution of devices as part of their campaign, they should be careful to assess whether their target groups believe that the distributed device will be effective.

Outside of the clinical setting, recent work has taken a more psychological approach, and has shown some promise, albeit without being experimentally tested against control conditions. The SAFER intervention ('Signpost, Assess, Facts, Emotion, Recommend'), which highlights how suicide is preventable while also handing out locking devices, has been shown to change gun storage behavior from pretest to a post-test one month later in a sample of gun-show visitors (Stuber et al., 2021). An intervention designed in collaboration with rural stakeholders that presents several potential messengers, as well as fact sheets and logistical help in acquiring storage devices has been found to change gun storage behaviors in the communities in which it was designed (Ewell-Foster, Magness et al., 2024). Finally, an ambitious study, in collaboration with several broadcasting stakeholders in Wisconsin, placed advertisements on local radio and TV stations featuring women and veterans from various cultural and racial backgrounds, including a former Green Bay Packers player, discussing firearm storage (Berger et al, 2024). A statewide survey revealed that those who saw the ads reported greater willingness to lock up their guns than those who did not see the ads, a finding that was especially strong among veterans. Nevertheless, some care should be taken in interpreting these studies because by not

comparing the findings against a control condition, it is possible that other unknown factors affected the results (see Sidman et al., 2005 for a case study in the importance of control conditions in identifying causal effects of storage interventions; and see Karras et al., 2019 for an intervention that found changes in attitudes but not behaviors).

Recommendations

Convincing gun owners to increase the security of their firearm home-storage setup by keeping all guns locked and unloaded with ammunition stored separately is likely to save lives. How should policymakers go about trying to make the argument? Researchers in public health communication have begun to explore the efficacy of various messaging approaches, but this research is still in its initial stages. From the existing research thus far, the primary recommendation is to identify a messenger who is a credible authority: viewed by listeners both as knowledgeable about the subject matter, trustworthy, and someone who communicates their legitimate care about the well-being of listeners. This is often conveyed through the profession of the messenger (members of the military and law enforcement are viewed as more credible than those in the health professions). Messengers connected to the audience through ties of care can also be effective in some situations.

A second recommendation focuses on the content of the message. The message should place the choice of how to store firearms in the hands of listeners to reduce defensiveness. Messages that root appeals to change storage behavior in valued identities such as appealing to listeners as people who are home protectors and responsible firearm owners may be especially persuasive. Messages should make sure that both the messenger and the listener share the same interpretation of what abstract terms like ‘safety’ and ‘responsibility’ actually mean. These are

capacious terms and often used differently by public health and firearm industry groups.

Assuming shared understanding of these terms, without checking on how listeners construe them is likely to appear high-handed and ignorant, thereby lessening one's credibility.

The final recommendation is to know who the listeners are, what their needs are, and to tailor the message appropriately. Gun owners tend to be treated as a monolithic entity – a radical simplification of a remarkably diverse group. The few studies that have surveyed gun owners with an aim to capture the variability of their differing motivations, goals, attitudes, beliefs, and social roles, suggest that messages and messengers are understood differently by different types of gun owners and that the same message delivered by the same messenger will not be equally persuasive to all.

The clearest takeaway from the current state of the literature is that there is a tremendous amount yet to be known. Existing reviews (e.g. Bulger, et al., 2019; Crosse, 2017; Khazanov et al., 2022; Ngo et al., 2019; Pallin, Spitzer, et al., 2019; RAND, 2018b; Roszko et al., 2016; Rowhani-Rahbar et al., 2016) stress the infancy of this research space. The above-mentioned recommendations are preliminary, and more research is needed to simultaneously address all aspects of the persuasion triad - *who is saying what to whom* – in order to generate meaningful, pragmatic change. No single strategy is likely to convince all members of the mass of American gun owners. Thus, starting with an understanding of the groups that one is trying to reach, what their model of gun ownership looks like, how they understand the tradeoffs around storage, what their barriers are for moving to different forms of storage and staging frameworks, who they think of as trusted messengers, and what sort of evidence they find compelling, are vital for successful attempt at encouraging the secure home storage of firearms.

References

- Anestis, M. D., Bandel, S. L., Butterworth, S. E., Bond, A. E., Daruwala, S. E., & Bryan, C. J. (2020). Suicide risk and firearm ownership and storage behavior in a large military sample. *Psychiatry Research, 291*, 113277.
- Anestis, M. D., & Bond, A. E. (2025). Firearm storage and the perceived risks and value of firearms: Differences among firearm owners and nonfirearm owners with and without a history of suicidal ideation. *Suicide and Life-Threatening Behavior, 55*(3), e70026.
- Anestis, M. D., Bond, A. E., Bryan, A. O., & Bryan, C. J. (2021). An examination of preferred messengers on firearm safety for suicide prevention. *Preventive Medicine, 145*, 106452.
- Anestis, M. D., Bryan, C. J., Capron, D. W., & Bryan, A. O. (2022). Evaluation of safe firearm storage messaging in a sample of firearm-owning US military service members. *JAMA Network Open, 5*(10), e2235984-e2235984.
- Anestis, M. D., Bryan, C. J., Capron, D. W., & Bryan, A. O. (2021). Lethal means counseling, distribution of cable locks, and safe firearm storage practices among the Mississippi national guard: a factorial randomized controlled trial, 2018–2020. *American Journal of Public Health, 111*(2), 309-317.
- Anestis, M. D., Butterworth, S. E., & Houtsma, C. (2018). Perceptions of firearms and suicide: The role of misinformation in storage practices and openness to means safety measures. *Journal of Affective Disorders, 227*, 530-535.
- Anestis, M. D., Mocerri-Brooks, J., Johnson, R. L., Bryan, C. J., Stanley, I. H., Buck-Atkinson, J. T., ... & Betz, M. E. (2023). Assessment of firearm storage practices in the US, 2022. *JAMA Network Open, 6*(3), e231447-e231447.
- Anglemeyer, A., Horvath, T., & Rutherford, G. (2014). The accessibility of firearms and risk for suicide and homicide victimization among household members: a systematic review and meta-analysis. *Annals of Internal Medicine, 160*(2), 101-110.
- Aunon, F. M., Azrael, D., Simonetti, J. A., & Miller, M. (2023). Beliefs among veteran firearm owners regarding whether clinicians should discuss firearm safety with patients. *JAMA Network Open, 6*(6), e2321219-e2321219.

- Azrael, D., & Miller, M. J. (2016). Reducing suicide without affecting underlying mental health: theoretical underpinnings and a review of the evidence base linking the availability of lethal means and suicide. *The International Handbook of Suicide Prevention*, 637-662.
- Bandel, S. L., Bond, A. E., Bryan, C. J., & Anestis, M. D. (2023). Public perception of gun violence-related headline accuracy and the credibility of media sources. *Health Communication*, 38(9), 1856-1861.
- Barber, C. W., & Miller, M. J. (2014). Reducing a suicidal person's access to lethal means of suicide: a research agenda. *American Journal of Preventive Medicine*, 47(3), S264-S272.
- Barnhart, M., Huff, A. D., McAlexander, B., & McAlexander, J. H. (2018). Preparing for the attack: Mitigating risk through routines in armed self-defense. *Journal of the Association for Consumer Research*, 3(1), 27-45.
- Berrigan, J., Azrael, D., Hemenway, D., & Miller, M. (2019). Firearms training and storage practices among US gun owners: a nationally representative study. *Injury Prevention*, 25(Suppl 1), i31-i38.
- Berger, B. D., Kohlbeck, S. A., Howard, K. P., Birgenheir, D. G., Chavin, R. S., Knowlton, G. G., Larsen, S. E., Larson, E. R., Smith, H. M., Spalding, R. L., Thomas, K. B., Vallejo, L. G., Buttery, D., & Hargarten, S. W. (2024). Effect of veteran-focused suicide prevention public messaging on help-seeking behavior and secure firearm storage. *OMEGA - Journal of Death and Dying*, <https://doi.org/10.1177/00302228241297553>
- Betz, M. E., Azrael, D., Barber, C., & Miller, M. (2016). Public opinion regarding whether speaking with patients about firearms is appropriate: results of a national survey. *Annals of Internal Medicine*, 165(8), 543-550.
- Betz, M. E., Harkavy-Friedman, J., Dreier, F. L., Pincus, R., & Ranney, M. L. (2021). Talking about "firearm injury" and "gun violence": words matter. *American Journal of Public Health*, 111(12), 2105-2110.
- Bond, A. E., Bandel, S. L., & Anestis, M. D. (2022). Determining subgroups that exist among US firearm owners. *Suicide and Life-Threatening Behavior*, 52(3), 537-548.
- Bond, A. E., Moceri-Brooks, J., Bandel, S. L., Crifasi, C., Bryan, C. J., Capron, D. W., ... & Anestis, M. D. (2024). Determining who military service members deem credible to discuss firearm safety for suicide prevention. *Suicide and Life-Threatening Behavior*, 54(3), 584-592.

Brehm, J. W. (1966). *A theory of psychological reactance*. Academic Press.

Bryan, C. J., Bryan, A. O., Anestis, M. D., Khazem, L. R., Harris, J. A., May, A. M., & Thomsen, C. (2019). Firearm availability and storage practices among military personnel who have thought about suicide. *JAMA Network Open*, 2(8), e199160-e199160.

Buck-Atkinson, J., McCarthy, M., Stanley, I. H., Harnke, B., Anestis, M. D., Bryan, C. J., ... & Betz, M. E. (2023). Firearm locking device preferences among firearm owners in the USA: a systematic review. *Injury Epidemiology*, 10(1), 33.

BulletPoints (2025). *Safe storage*. <https://www.bulletpointsproject.org/safe-firearm-storage-devices/>. Retrieved 9/2/2025

Bulger, E. M., Kuhls, D. A., Campbell, B. T., Bonne, S., Cunningham, R. M., Betz, M., ... & Stewart, R. M. (2019). Proceedings from the medical summit on firearm injury prevention: a public health approach to reduce death and disability in the US. *Journal of the American College of Surgeons*, 229(4), 415-430e12.

Buttrick, N. (2020). Protective gun ownership as a coping mechanism. *Perspectives on Psychological Science*, 15(4), 835-855.

Buttrick, N., Warner, T., Miller, M., & Azrael, D. (under review). *What does it mean to be a responsible firearm owner? Definitional variations and differential outcomes*

Carlson, J. (2015). *Citizen-protectors: The everyday politics of guns in an age of decline*. Oxford University Press.

Cerel, J., Jordan, J. R., & Duberstein, P. R. (2008). The impact of suicide on the family. *Crisis*, 29(1), 38-44.

Conrick, K. M., Banks, S., Schleimer, J. P., Gomez, A., Pallickaparambil, A. J., Ta, M., & Rowhani-Rahbar, A. (2025). Household firearm storage practices. *JAMA Network Open*, 8(7), e2518960-e2518960.

Conrick, K. M., Smith, M. B., Rooney, L., Morgan, E., Rowhani-Rahbar, A., & Moore, M. (2023). Openness to church-based firearm safety interventions among Protestant Christian firearm owners. *Public Health*, 216, 45-50.

Conner, A., Azrael, D., & Miller, M. (2018). Public opinion about the relationship between firearm availability and suicide: results from a national survey. *Annals of Internal Medicine*, 168(2), 153-155.

Crosse, M. (2017) *Personal firearms: Programs that promote safe storage and research on their effectiveness*. U.S. Government Accountability Office, GAO-17-665.

Crifasi, C. K., Doucette, M. L., McGinty, E. E., Webster, D. W., & Barry, C. L. (2018). Storage practices of US gun owners in 2016. *American Journal of Public Health*, 108(4), 532-537.

Dobscha, S. K., Clark, K. D., Newell, S., Kenyon, E. A., Karras, E., Simonetti, J. A., & Gerrity, M. (2021). Strategies for discussing firearms storage safety in primary care: veteran perspectives. *Journal of General Internal Medicine*, 36(6), 1492-1502.

Ewell Foster, C., Derwin, S., Bornheimer, L. A., Magness, C., Kahsay, E., Eis, M., ... & King, C. A. (2024). Firearm safe storage in rural families: community perspectives about ownership and safety messaging. *Health Promotion Practice*, 25(1), 33-48.

Ewell Foster, C., Magness, C. S., Derwin, S., Kahsay, E., Smith, T., Rivara, F. P., ... & King, C. A. (2024). Store safely: A firearm injury prevention strategy for rural families. *Journal of Rural Mental Health*, 48(4), 247.

Fryhofer, S. (2023, March 9). *How physicians can talk to patients about gun violence and firearm safety*. <https://www.ama-assn.org/public-health/injury-violence-prevention/how-physicians-can-talk-patients-about-gun-violence-and>

Hemenway, D., Rausher, S., Violano, P., Raybould, T. A., & Barber, C. W. (2019). Firearms training: what is actually taught?. *Injury Prevention*, 25(2), 123-128.

Henn, M., Barber, C., & Hemenway, D. (2019). Involving firearm stakeholders in community-based suicide prevention efforts. *Current Epidemiology Reports*, 6(2), 231-237.

Hovland, C., Janis, I., & Kelley, H. (1953). *Communication and persuasion: Psychological studies of opinion change*. Yale University Press.

Hoyt, T., & Duffy, V. (2015). Implementing firearms restriction for preventing US Army suicide. *Military Psychology*, 27(6), 384-390.

Hunter Ed (2025). *The four primary rules of firearm safety*. https://www.hunter-ed.com/national/studyGuide/The-Four-Primary-Rules-of-Firearm-Safety/201099_93163/ (Retrieved 8/20/25)

Jager-Hyman, S., Benjamin Wolk, C., Ahmedani, B. K., Zeber, J. E., Fein, J. A., Brown, G. K., ... & Beidas, R. S. (2019). Perspectives from firearm stakeholders on firearm safety promotion in pediatric primary care as a suicide prevention strategy: a qualitative study. *Journal of Behavioral Medicine*, 42(4), 691-701.

Karras, E., Stokes, C. M., Warfield, S. C., Barth, S. K., & Bossarte, R. M. (2019). A randomized controlled trial of public messaging to promote safe firearm storage among US military veterans. *Social Science & Medicine*, 241, 112205.

Khazanov, G. K., Keddem, S., Hoskins, K., Myhre, K., Sullivan, S., Mitchell, E., ... & Simonetti, J. (2022). Stakeholder perceptions of lethal means safety counseling: A qualitative systematic review. *Frontiers in Psychiatry*, 13, 993415.

Kim, R., Wagner, E. D., Nestadt, P. S., Somayaji, N., Horwitz, J., & Crifasi, C. K. (2025). *Gun violence in the United States 2023: Examining the gun suicide epidemic*. Johns Hopkins Center for Gun Violence Solutions.

Marino, E., Wolsko, C., Keys, S. G., & Pennavarria, L. (2016). A culture gap in the United States: implications for policy on limiting access to firearms for suicidal persons. *Journal of Public Health Policy*, 37(Suppl 1), 110-121.

Marino, E., Wolsko, C., Keys, S., & Wilcox, H. (2018). Addressing the cultural challenges of firearm restriction in suicide prevention: a test of public health messaging to protect those at risk. *Archives of Suicide Research*, 22(3), 394-404.

McGee, K. S., Coyne-Beasley, T., & Johnson, R. M. (2003). Review of evaluations of educational approaches to promote safe storage of firearms. *Injury Prevention*, 9(2), 108-111.

McMurtry, C. L. (2025). The changing politics of guns in America. *Journal of Health Politics, Policy and Law*, 11995176.

Miller, M., Barber, C., White, R. A., & Azrael, D. (2013). Firearms and suicide in the United States: is risk independent of underlying suicidal behavior?. *American Journal of Epidemiology*, 178(6), 946-955.

- Miller, M., Swanson, S. A., & Azrael, D. (2016). Are we missing something pertinent? A bias analysis of unmeasured confounding in the firearm-suicide literature. *Epidemiologic Reviews*, 38(1), 62-69.
- Miller, M., Wertz, J., Swanson, S. A., Simonetti, J. A., Zhang, Y., & Azrael, D. R. (2025). Firearm storage and firearm suicide. *JAMA Network Open*, 8(7), e2519266-e2519266.
- National Shooting Sports Foundation (2025). *Project ChildSafe*. <https://projectchildsafe.org/>. Retrieved 09/02/25
- Ngo, Q. M., Sigel, E., Moon, A., Stein, S. F., Massey, L. S., Rivara, F., ... & FACTS Consortium. (2019). State of the science: a scoping review of primary prevention of firearm injuries among children and adolescents. *Journal of Behavioral Medicine*, 42(4), 811-829.
- Pallin, R., Siry, B., Azrael, D., Knoepke, C. E., Matlock, D. D., Clement, A., ... & Betz, M. E. (2019). “Hey, let me hold your guns for a while”: a qualitative study of messaging for firearm suicide prevention. *Behavioral Sciences & the Law*, 37(3), 259-269.
- Pallin, R., Spitzer, S. A., Ranney, M. L., Betz, M. E., & Wintemute, G. J. (2019). Preventing firearm-related death and injury. *Annals of Internal Medicine*, 170(11), ITC81-ITC96.
- Pruitt, L. D., Sung, J. C., & Walker, K. A. (2022). What is “safety”? Lethal means counseling as a cross-cultural communication. *Military Psychology*, 34(3), 352-365.
- Quick, B. L., Shen, L., & Dillard, J. P. (2013). Reactance theory. *The SAGE handbook of Persuasion*, 167.
- Ramchand R. (2022) *Personal firearm storage in the United States: Recent estimates, patterns, and effectiveness of interventions*. RAND Corporation, RR-A243-5. https://www.rand.org/pubs/research_reports/RRA243-5.html.
- RAND (2018a). *The relationship between firearm availability and suicide*. <https://www.rand.org/research/gun-policy/analysis/essays/firearm-availability-suicide.html>.
- RAND (2018b). *Education campaigns and clinical interventions for promoting safe storage*. <https://www.rand.org/research/gun-policy/analysis/essays/safe-storage.html>
- Rowhani-Rahbar, A., Simonetti, J. A., & Rivara, F. P. (2016). Effectiveness of interventions to promote safe firearm storage. *Epidemiologic Reviews*, 38(1), 111-124.

- Roszko, P. J., Ameli, J., Carter, P. M., Cunningham, R. M., & Ranney, M. L. (2016). Clinician attitudes, screening practices, and interventions to reduce firearm-related injury. *Epidemiologic Reviews*, 38(1), 87-110.
- Salhi, C., Azrael, D., & Miller, M. (2021). Patterns of gun owner beliefs about firearm risk in relation to firearm storage: a latent class analysis using the 2019 National Firearms Survey. *Injury Prevention*, 27(3), 271-276.
- Schenck, C., Wilson, M., Tiyyagura, G., & Bechtel, K. (2022). Parental attitudes, beliefs, and practices related to firearm storage: a qualitative study. *Injury Epidemiology*, 9(Suppl 1), 35.
- Sidman, E. A., Grossman, D. C., Koepsell, T. D., D'Ambrosio, L., Britt, J., Simpson, E. S., ... & Bergman, A. B. (2005). Evaluation of a community-based handgun safe-storage campaign. *Pediatrics*, 115(6), e654-e661.
- Simonetti, J. A., Azrael, D., & Miller, M. (2019). Firearm storage practices and risk perceptions among a nationally representative sample of US veterans with and without self-harm risk factors. *Suicide and Life-Threatening Behavior*, 49(3), 653-664.
- Simonetti, J. A., Rowhani-Rahbar, A., King, C., Bennett, E., & Rivara, F. P. (2018). Evaluation of a community-based safe firearm and ammunition storage intervention. *Injury Prevention*, 24(3), 218-223.
- Simonetti, J. A., Simeona, C., Gallagher, C., Bennett, E., Rivara, F. P., & Rowhani-Rahbar, A. (2019). Preferences for firearm locking devices and device features among participants in a firearm safety event. *Western Journal of Emergency Medicine*, 20(4), 552.
- Stroebe, W., & Leander, N. P. (2024). Why Americans increasingly claim to own guns for self-protection: A modern culture of social-psychological threat defense. *Group Processes & Intergroup Relations*, 27(5), 1002-1013.
- Stuber, J. P., Massey, A., Meadows, M., Bass, B., & Rowhani-Rahbar, A. (2021). SAFER brief community intervention: a primary suicide prevention strategy to improve firearm and medication storage behaviour. *Injury Prevention*, 27(5), 428-434.
- Studdert, D. M., Zhang, Y., Swanson, S. A., Prince, L., Rodden, J. A., Holsinger, E. E., ... & Miller, M. (2020). Handgun ownership and suicide in California. *New England Journal of Medicine*, 382(23), 2220-2229.

- Walters, H., Kulkarni, M., Forman, J., Roeder, K., Travis, J., & Valenstein, M. (2012). Feasibility and acceptability of interventions to delay gun access in VA mental health settings. *General Hospital Psychiatry, 34*, 692–698.
- Warner, T. D. (2022). Always at the ready: Fears, threats, and unsafe gun storage in households with children. *Violence and Victims, 37*(4), 441-458.
- Warner, T. D. (2024). Locked and loaded: correlates of in-home firearm storage beliefs and behaviours. *Injury Prevention, 30*(6), 454-461.
- Watkins, A. M., & Lizotte, A. J. (2013). Does household gun access increase the risk of attempted suicide? Evidence from a national sample of adolescents. *Youth & Society, 45*(3), 324-346.
- Winkler, A. (2011). *Gunfight: The battle over the right to bear arms in America*. WW Norton & Company.
- Wintemute, G. J., Betz, M. E., & Ranney, M. L. (2016). Yes, you can: physicians, patients, and firearms. *Annals of Internal Medicine, 165*(3), 205-213.
- Wolk, C. B., Van Pelt, A. E., Jager-Hyman, S., Ahmedani, B. K., Zeber, J. E., Fein, J. A., ... & Beidas, R. S. (2018). Stakeholder perspectives on implementing a firearm safety intervention in pediatric primary care as a universal suicide prevention strategy: a qualitative study. *JAMA Network Open, 1*(7), e185309-e185309.