

# Law enforcement and firearms: understanding firearm ownership and storage habits

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## ABSTRACT

**Objective** This study seeks to better understand firearm ownership among law enforcement officers (LEO), with the goal of informing future firearm injury and suicide prevention efforts. We describe the frequency and sociodemographic correlates of firearm ownership and storage practices among, and examine the association between suicidal ideation and current firearm storage practices.

**Methods** The present study used data from a large online study (n=6410) and included data from individuals who were currently or previously being employed as an LEO (n=369; M (SD) age=39.2 y (15.8 y), 75.2% male, 66.7% white). Self-report measures were used to assess for firearm ownership, storage habits and suicidal ideation. Descriptive statistics were used to describe the frequency of firearm ownership and logistic regressions were used to examine the extent to which demographic characteristics and suicidal ideation were associated with firearm ownership.

**Results** Overall, 70.5% (n=261) of the sample reported firearm ownership. LEO who were older had significantly lower odds of reporting firearm ownership. Those who were married and those who reported lifetime suicidal ideation had significantly greater odds of reporting firearm ownership. Whereas firearm-owning LEO who reporting storing a firearm locked had significantly lower odds of reporting lifetime suicidal ideation, those who reported storing a firearm unloaded had significantly greater odds of reporting lifetime suicidal ideation.

**Conclusion** Findings have important public health implications and can be used to increase adherence with secure storage recommendations. Increasing secure storage may help reduce suicide risk among LEO, a sample at heightened risk for suicide.

## INTRODUCTION

Two literature reviews indicate that law enforcement officers (LEOs) are at elevated risk for suicidal thoughts and behaviours.<sup>1,2</sup> In a study of 5148 Canadian public safety personnel, 21%–35% of LEOs, depending on occupational role, reported lifetime suicidal ideation.<sup>3</sup> Among US first responders (n=108 identifying as a LEO), one study found that 52% of the sample reported a history of suicidal ideation (US population=4.3%; US Centers for Disease Control and Prevention (CDC) 2022).<sup>4,5</sup> Furthermore, using data from the CDC, Violanti and Steege<sup>6</sup> found that, among decedents who were employed during their lifetime, there was a significantly higher proportion of deaths by suicide among LEOs. Findings suggest that LEOs are at increased

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Previous research indicates that law enforcement officers (LEO) are at an increased risk for experiencing suicidal ideation. Additionally, LEOs may have a greater ability to act on thoughts of suicide due to firearm familiarity and ready access. Concerningly, firearm ownership and non-secure storage practices are associated with increased suicide risk.

## WHAT THIS STUDY ADDS

⇒ This study furthers the existing literature on suicide risk among LEO by examining who is likely to own firearms and therefore be at increased risk for suicide. Additionally, this study seeks to understand how suicidal ideation may impact firearm storage practices.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE, OR POLICY

⇒ Findings highlights that LEO may benefit from information on means safety and lethal means counselling. Creating policies that promote the use and availability of secure storage options (eg, gun safes) among LEO may result in an increase in secure storage and may in turn reduce suicide risk.

risk for suicide, and targeted suicide prevention efforts are needed.

To optimally develop suicide prevention programmes for LEOs, it is important to consider the suicide methods used. One retrospective analysis found that, over a nearly 20-year period (1977–1996), 94% (n=75/80) of New York City LEO suicides were enacted with a firearm.<sup>7</sup> An analysis of data from the CDC's National Violent Death Reporting System found that of the 296 LEO suicides occurring between 2003 and 2012, firearms were used in 82% (n=242) of suicide deaths.<sup>8</sup> By contrast, in the general US population, firearms are used in approximately 53% of suicides.<sup>9</sup> Thus, converging evidence suggests that, among suicide decedents, LEOs are more likely than the general population to use a firearm.

The high proportion of LEO suicide decedents using a firearm may be due to several factors. First, LEOs often have access to and familiarity with firearms.<sup>10–11</sup> Dozens of case-control and ecological studies have shown that firearm access is associated with increased risk of suicide.<sup>12–13</sup> This elevated suicide risk persists when accounting for the effects of other suicide risk factors, such as



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**Table 1** Sample characteristics

	Overall sample n=369	Non-firearm owners n=93	Firearm owners n=260
	N (%)	N (%)	N (%)
Age			
Mean (SD)	39.22 (15.83)	41.12 (18.780)	38.85 (14.77)
Range	18–80 years old	18–80 years old	18–80 years old
Sex			
Male	277 (75.2%)	30 (32.5%)	201 (77.2%)
Female	91 (24.8%)	63 (67.5%)	59 (22.8%)
White			
Yes	246 (66.7%)	53 (57.2%)	182 (69.9%)
No	123 (33.3%)	40 (42.8%)	78 (30.1%)
Married			
Yes	264 (71.5%)	53 (56.3%)	204 (78.8%)
No	103 (28.1%)	41 (43.7%)	55 (21.2%)
Education			
Less than high school	7 (2.3%)	2 (2.2%)	5 (2.0%)
High school	72 (19.5%)	27 (29.4%)	40 (15.3%)
Associate's degree	51 (13.7%)	13 (13.5%)	36 (13.7%)
Bachelor's degree	86 (23.4%)	28 (30.5%)	56 (21.6%)
Master's degree	124 (33.7%)	18 (19.0%)	103 (39.4%)
Advanced degree	27 (7.3%)	5 (5.4%)	21 (8.0%)
Lifetime suicidal ideation			
Yes	213 (57.7%)	39 (41.9%)	166 (63.6%)
No	156 (42.3%)	54 (58.1%)	95 (36.4%)

psychopathology.<sup>13 14</sup> Second, LEOs may be more likely than the general population to own firearms for personal protection. Owning a firearm for personal protection is associated with greater use of non-secure storage practices (eg, storing a firearm loaded and unlocked),<sup>15–17</sup> which is also associated with elevated suicide risk.<sup>18 19</sup> Third, individuals with a history of suicidal ideation are more prone to non-secure firearm storage<sup>20 21</sup>; given the elevated risk of suicidal ideation among LEOs,<sup>1 2 4</sup> this might prompt non-secure firearm storage practices, thereby augmenting risk.

However, to our knowledge, the frequency of firearm ownership and storage practices among US LEOs is largely unknown. In this study, we examined the frequency of firearm ownership and storage practices among US LEOs. We additionally examined the association between lifetime suicidal ideation and current firearm storage practices.

## METHODS

Data were collected as part of a larger study examining firearm ownership within the US (n=6410). Participants were recruited from Qualtrics Panels, and matched to the 2010 census on multiple demographic variables. Individuals were included in the present study if they reported current or previous LEO status. Of the total sample, 369 participants were included in the present study (table 1).

## Measures

Demographic characteristics (age, sex, race, education, marital status, children at home) were assessed using items developed by the study team.

Lifetime suicidal ideation was assessed using the self-report version of the Self-Injurious Thoughts and Behaviors Interview-Revised (SITBI-R).<sup>22</sup> Individuals were considered to have

lifetime suicidal ideation if they endorsed experiencing at least one of eight items assessing suicidal thoughts (online supplemental appendix A). The SITBI-R and the approach were chosen given its use in multiple studies assessing suicidal ideation among firearm owners.<sup>23</sup> The SITBI-R has demonstrated good reliability in the general population and military service members.<sup>22–24</sup>

Firearm ownership was assessed with a yes/no item: ‘Do you currently own a firearm?’ Primary reason for ownership was assessed through asking, ‘Which of the following is your primary reason for keeping a firearm at home?’ Response options included: *gift/inheritance; family heirloom; personal protection; competition; hunting; other recreation; express freedom; belongs to someone I live with; don't know how to get rid; and other*. Storage techniques were assessed asking, ‘Which of the following storage procedures do you use for the firearms currently located in or around your home?’ Response options included: *gun safe; gun cabinet; locking device; hard case; closet/drawer unloaded; and closet/drawer loaded*. Type of firearms owned was assessed asking, ‘How many of each type of firearm do you currently have in or around your home?’ Participants indicated how many handguns, rifles and shotgun were in or around their home.

## Patient and public involvement

No patient involved.

## Data analytic plan

Descriptive statistics characterised the frequency of firearm ownership. A logistic regression examined the extent to which demographic characteristics and lifetime suicidal ideation were associated with firearm ownership. A logistic regression examined demographic differences between LEOs who did and did not own firearms as well as firearm ownership characteristics

**Table 2** Firearm ownership characteristics among firearm owning law enforcement officers (n=261)

	N (%)
Primary reason for ownership	
Gift/inheritance	50 (22.7)
Family heirloom	30 (13.8)
Personal protection	95 (43.5)
Competition	6 (2.8)
Hunting	15 (7.0)
Other recreation	6 (2.5)
Express freedom	9 (4.0)
Belongs to someone I live with	6 (2.5)
Don't know how to get rid	1 (0.4)
Other	2 (0.8)
Gun safe	
No	157 (60.2)
Yes	104 (39.8)
Gun cabinet	
No	208 (79.8)
Yes	53 (20.2)
Locking device	
No	180 (68.8)
Yes	81 (31.2)
Hard case	
No	206 (78.9)
Yes	55 (21.2)
Closet/drawer unloaded	
No	223 (85.2)
Yes	39 (14.8)
Closet/drawer loaded	
No	231 (88.5)
Yes	30 (11.5)

(eg, reason for ownership) among LEOs who reported owning a firearm.

## RESULTS

Overall, 70.5% (n=261) of the sample reported firearm ownership. Among firearm-owning LEOs, handguns were the most commonly owned type of firearm (79.7%), followed by shotguns (61.1%), and rifles (57.5%). Overall, 78.9% reported owning more than one type of firearm. The primary reason for owning a firearm was for personal protection (43.5%). The most common type of secure storage methods (table 2) used were gun safes (39.8%), followed by locking devices (eg, trigger or cable locks; 31.2%), hard cases (21.1%), gun cabinets (20.2%), stored in a closet or drawer unloaded (14.8%), and stored in a closet or drawer loaded (11.5%). In terms of suicidal ideation, over half (57.6%) of the sample reported lifetime thoughts of suicide. Of the individuals who reported being affiliated with law enforcement agencies, 154 reported currently being and 214 reported previous employment.  $\chi^2$  analyses indicated that there were no significant differences between the two groups in terms of sex ( $\chi^2=0.141$ ;  $p=0.707$ ) or white ( $\chi^2=1.424$ ;  $p=0.233$ ). Current LEOs were significantly more likely to own firearms (84%) compared with previous LEOs (66%;  $\chi^2=14.387$ ;  $p<0.001$ ).

LEO who were older (OR=0.98; 95% CI 0.96 to 1.00) had significantly lower odds of owning a firearm. Those who were married (OR=3.32; 95% CI 1.67 to 6.63) and reported lifetime suicidal ideation (OR=1.82; 95% CI 1.04 to 3.19) had

**Table 3** Multivariable logistic regression examining law enforcement officers who own (1) and do not own (0) a firearm

	P	OR	95% CI lower	95% CI upper
Age	0.05	0.98	0.96	1.00
Sex	0.08	0.59	0.33	1.05
White	0.71	1.13	0.61	2.09
Education	0.08	1.20	0.98	1.48
Married	<0.001	3.32	1.67	6.63
Kids in home	0.42	1.28	0.70	2.35
Suicidal ideation	0.04	1.82	1.04	3.19

Note: all variables were put into one model. sex was coded 0=male and 1=female. White was coded as 0=no and 1=yes. Married was coded as 0=no and 1=yes. Children in the home was coded as 0=no and 1=yes. Suicidal ideation was coded as 0=no and 1=yes.

significantly greater odds of owning a firearm (table 3). We conducted a follow-up t-test to further compare age differences between LEOs reporting and not reporting firearm ownership. LEOs who reported firearm ownership were younger (M=38.82 (14.762) vs M=41.46 (19.09),  $t=47.52$ ,  $p<0.001$ ) than those who denied ownership.

The exploratory analysis (table 4 and table 5) indicates that firearm owners who store a firearm locked (eg, locking device) had significantly lower odds of reporting lifetime suicidal ideation (OR=0.37; 95% CI=0.22 to 0.63). Firearm owners who store a firearm unloaded had significantly greater odds of reporting lifetime suicidal ideation (OR=2.94; 95% CI 1.32 to 6.52). Additionally, firearm owning LEOs who reported personal protection as their primary reason for firearm ownership, compared with other reasons, were significantly less likely to store a firearm locked (OR=0.54; 95% CI 0.312 to 0.93).

## DISCUSSION

This study sought to understand how sociodemographic factors may impact firearm ownership and storage practices among LEOs. Overall, a majority of LEOs reported owning at least one firearm, most frequently owned handguns. Three sociodemographic factors were associated with firearm ownership among LEO: younger age, being married and lifetime suicidal ideation.

Among the general population, older age is commonly associated with firearm ownership.<sup>25</sup> However, in our sample, the reverse was true for LEO, with younger age associated with greater odds of firearm ownership. It is important to note that

**Table 4** Bivariable logistic regressions examining law enforcement officers who own (1) and do not own (0) a firearm

	P	OR	95% CI lower	95% CI upper
Age	0.17	0.99	0.98	1.00
Sex	0.04	0.58	0.35	0.97
White	0.04	1.65	1.02	2.66
Education	<0.001	1.43	1.20	1.71
Married	<0.001	2.82	1.72	4.62
Kids in home	<0.001	1.81	1.74	4.53
Suicidal ideation	<0.001	1.39	1.49	3.82

Note: all lines in the table represent separate binary logistic regressions that were conducted.

Note: all variables were put into one model. Sex was coded 0=male and 1=female. White was coded as 0=no and 1=yes. Married was coded as 0=no and 1=yes. Children in the home was coded as 0=no and 1=yes. Suicidal ideation was coded as 0=no and 1=yes.

**Table 5** Exploratory binary logistic regression examining storage habits among law enforcement officers with (1) and without (0) lifetime suicidal ideation

	P	OR	95% CI lower	95% CI upper
Locked	<0.001	0.37	0.22	0.63
Unloaded	0.008	2.94	1.32	6.52

Based on the findings, we conducted two additional exploratory analyses. First, we conducted a binary logistic regression with lock status as the dependent variable and lifetime suicidal ideation as the predictor. Findings indicate that lock status was not significantly associated with lifetime suicidal ideation ( $p=0.60$ ;  $OR=0.85$  (0.47 to 1.55)). Second, we conducted a binary logistic regression with load status as the dependent variable and lifetime suicidal ideation as the predictor. Findings were consistent with the results presented in this table, load status was significantly associated with lifetime suicidal ideation ( $p=0.02$ ;  $OR=2.61$  (1.21 to 5.65)).

the mean age difference, while significant, was only about 2.5 years apart and therefore the finding should be interpreted with caution. It may be that those who are younger may be more likely to currently be employed as a LEO and to therefore have access to a service weapon. Additionally, it may be that LEO represent a unique subgroup of the population and firearm ownership looks different than among the general population.

Consistent with previous research among veterans<sup>26</sup> and the general population,<sup>27</sup> Analyses indicated that being married was associated with firearm ownership. While research has yet to determine reasons that marital status impacts firearm ownership, it may be that being married is associated with a greater income level, which in turn provides individuals the means necessary to purchase firearms. In line with this, it may be that having a higher income leads to a feeling of greater need to protect one's possessions. This finding needs to be replicated, and future research examining how marital status may impact reason for ownership is needed.

The present study found that LEOs who experience suicidal ideation were more likely to own a firearm than those who did not report suicidal ideation. Research has traditionally found that firearm ownership is not associated with suicidal ideation, and therefore the results in this sample stand out and may represent a troubling exception to general trends. It might be that some aspect of LEO's lifestyle or culture prompts them to purchase firearms when feeling distressed. The data, however, cannot elucidate whether the firearm purchases predated or followed the onset of suicidal thoughts, nor can the data provide sufficient information regarding the motivation for the firearm purchase relative to suicidal ideation. Alternatively, it may be that LEO status is associated with both increased risk for suicidal ideation and firearm ownership, indicating that the association between suicide and firearms may not be salient. Regardless, firearm access among those with suicidal ideation is concerning. Furthermore, there are several unmeasured confounds that may impact firearm ownership, storage habits and the use of a firearm in a suicide attempt.<sup>28</sup> Replication of this finding in another sample would help increase the confidence.<sup>29</sup> Replication of this finding in another sample would help increase the confidence.

Among LEOs who own firearms, differences emerged in secure and unsecure storage habits. Storing a firearm locked was associated with lower odds of suicidal ideation, whereas storing a firearm unloaded was associated with greater odds of suicidal ideation. Given these inconsistencies, we conducted another set of exploratory analyses with lock status as the outcome variable and suicidal ideation as the predictor, and the relationship was no longer significant. The same analysis was conducted with load status and the findings remained consistent. These

inconsistencies may have a few explanations. Given the small sample size, it is possible that these findings are spurious, and therefore additional research is needed to better understand storage habits. Additionally, prior research has found that efforts to promote secure storage, such as lethal means counselling and means safety messaging, often impact lock status but not load status.<sup>30 31</sup> It may be that what drives a firearm owner to store a firearm loaded differs from what motivates firearm owners to store a firearm unlocked, and this difference may also be associated with a vulnerability to suicidal ideation. Taken together with our finding that LEOs with prior suicidal thoughts were more likely to own firearms, the results highlight the importance of understanding the interplay between suicidal thoughts and the acquisition, storage and use of firearm among LEOs. Given the exploratory nature of this finding it should be interpreted with caution.

The finding on load status raises a point of concern. Those who are experiencing suicidal ideation have access to the most lethal method for suicide, therefore equipping them with the capability to move from having thoughts of suicide to attempting suicide.<sup>32</sup> Additionally, this finding indicates that suicidal ideation does not prompt one to engage in secure storage. This may point to an area for intervention. Specifically, while those who experience suicidal ideation are an important group to promote secure storage, they may also be more resistant to engaging in secure storage. This may be due to a number of reasons. For instance, it may be that they do not believe the connection between suicide risk and access to firearms. One way to counter this is to provide clear information on the association between firearms and suicide risk. Another explanation may be that factors such as the perceived ability to protect their family outweighs the perceived risk that firearms pose with respect to suicide. Conversations that focus on secure firearm storage and speak to the values of firearm owners are important. Additionally, that messages about secure firearm storage may not reach those at risk. Previous research has found that military service members who do not disclose their thoughts of suicide and do not attend behavioural healthcare tend to have more ready access to a firearm.<sup>23</sup> In line with this, the vast majority of those who die by firearm suicide do not seek behavioural healthcare.<sup>33</sup> Mental healthcare providers are often tasked with discussing secure storage, but if those who store in an unsecure manner and die by firearm suicide do not interact with mental healthcare, then they are likely not receiving information on secure storage. Therefore, conversations on secure firearm storage should occur outside of mental healthcare and be provided to all regardless of suicide risk. Law enforcement agencies should consider implementing lethal means training into the police academy and include it as a continuous training requirement. While research has yet to examine the frequency and effectiveness of these trainings among LEOs, research conducted among military members indicates that a single lethal means counselling session can increase secure firearm storage.<sup>30</sup>

Overall, fewer than half of LEO reported using secure firearm storage methods. The most common secure storage method used was a gun safe, followed by a trigger lock or cable lock. These findings are in line with previous research, which found that, within a nationally representative sample, gun safes were the most frequently used storage devices<sup>23</sup> and that firearm owners prefer discounts on more expensive locking devices, such as gun safes, compared with other forms of locking devices (eg, cable locks).<sup>34</sup> Of note, the exploratory analyses indicated that those who owned a firearm for protection were less likely to use a locking device. It is important to consider ways to increase the

accessibility and knowledge of devices such as biometric safes and other secure storage devices that may be more preferred by those who own for protection. Locking devices were the second most used storage device. Legally, locking devices (eg, cable locks) are supposed to be provided with all legal purchases of a handgun within the USA.<sup>35</sup> The frequency of use for locking devices relative to other secure storage options may simply reflect their greater availability. As previously mentioned, many LEOs do not store their firearms securely, meaning that they likely have ready access to a firearm, which in turn may increase risk for suicide. Given the low rate of secure storage, firearm storage messages should be customised to speak to the needs, preferences and experiences of LEO to increase adherence with storage recommendations. Law enforcement agencies and policy-makers should consider ways to increase secure storage among LEOs, such as giving gun safes and locking devices prior to being given a service weapon and providing coupons for secure storage devices for personally owned firearms. Although the rate of secure firearm storage is low, a percentage of LEO do store their firearms in a secure manner. Developing a better understanding of their decision to store their firearm safely and leveraging their voices in this conversation may help to increase secure storage among LEOs.

Several studies have found that LEOs are viewed by service members and civilians to be the most credible sources to discuss secure firearm storage for suicide prevention.<sup>16 36 37</sup> An experimental study examining firearm-owning service members reported that messages featuring security forces (United States Air Force law enforcement) were the most likely to prompt increased willingness to adopt a variety of secure firearm storage practices.<sup>31</sup> Although they are seen as credible by others, their lack of secure storage is concerning and provides an opportunity to work together with LEO to provide education and information on secure firearm storage. Given their credibility, finding ways to increase knowledge on secure firearm storage will not only help increase firearm safety among this population, but may help to increase secure storage among the general population.

### Limitations and conclusion

Although informative, the present study is not without its limitations. We were limited in our understanding of LEO professional experiences. Second, we did not assess for the job that LEO held (eg, security guard, detective); there may be differences between occupations which may impact one's ownership of a firearm. Additionally, we were unable to differentiate between personally owned firearms and service weapons. It is possible that some of the firearms in or around the home may have been provided by a Law Enforcement Agency. Our use of quota sampling limits the generalisability of the findings and precludes the development of population estimates based on our data. Another limitation is the measures used to assess suicidal ideation. Self-report measures of suicidal ideation are limited in their ability to capture suicidal among firearm owners at elevated risk for suicide.<sup>38</sup> Future studies should employ other measures to assess suicidal ideation among this high-risk group. Additionally, the small sample size may have resulted in large CIs and impacted our findings. Lastly, given the sample size we were not able to determine if these findings remain consistent when the sample was limited to those who are currently employed as LEO and those who were formerly LEO.

This study provides an understanding of sociodemographic factors that are associated with firearm ownership among LEOs, and provides information on the types of secure firearm storage

habits used by LEOs. These findings have important public health implications and can be used to increase adherence with secure storage recommendations. Increasing secure storage may help reduce suicide risk among LEO, a sample at heightened risk for suicide.

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**Patient consent for publication** Not applicable.

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